



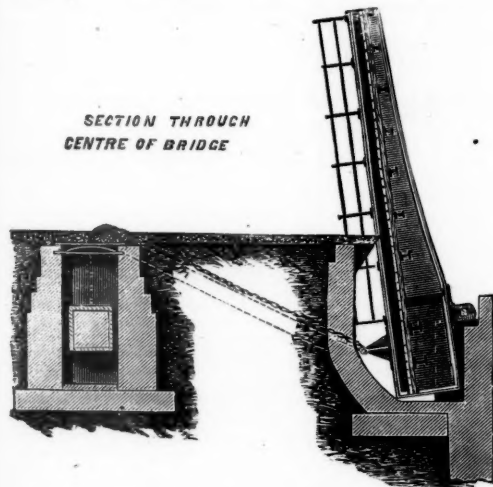
SATURDAY, DECEMBER 20, 1873.

Browne's Counterbalanced Lifting Bridge.

We copy from *Engineering* the accompanying engraving and description:

This invention, patented by Mr. Walter Browne, C. E., relates to the class of bridges which are opened by being lifted into an erect position after the manner of the ancient draw-bridges. In order to facilitate the operation of lifting, it is usual to make the jib end and heel end of the bridge balance each other round the shaft or axle. It is in the arrangement of this counterbalancing that the present invention consists. The counterweight in this case is not attached to the bridge so as to form part of it, but is contained in a separate pit or chamber placed some distance behind the heel of the bridge. This counterweight may consist of a cast-iron box filled with sand, water, or other convenient material. To each end of this box a chain is attached which passes over a pulley at the top of the pit or chamber, and is thence led to the point of attachment to the bridge. This point of attachment should be over the axle of the bridge and at a considerable height above it, so as to give a suitable leverage to the pull of the chain. This height may be obtained by placing the axle below the bottom of the bridge girders, and by using a bracket or standard bolted to the top of the outside girder, to which the chain may be attached, it will then be seen that supposing the moment round the axle of the weight of the bridge to be equal to that of the pull of the chain when the bridge is down, then, as soon as the bridge is raised the moment of the pull, acting at a longer arm, will be greater than that of the weight, and will therefore continue the motion of itself. The point of attachment should be so arranged that when the center of grav-

ity of the bridge is vertically over the axle, the line of the chain produced may also pass through the axle, or nearly so, so that the two moments may be zero about the same time. From this point the moment of the chain, still acting in a contrary direction to that of the weight of the bridge, will tend to stop the bridge, or to destroy the motion previously given; and as it will again have a preponderance over the moment of the weight, the bridge may be brought to rest in its proper position when fully open. In closing the bridge the same effects will be produced, the counterweight accelerating the motion of the bridge in the first half of its travel and retarding it in the second, so that it may be brought to rest in its original position.



In order to obtain some data for comparison, the bridge has been taken for which the invention was originally designed, viz., a two-leaf bridge, 28 feet wide out to out, spanning a 40-foot opening. A rough estimate has been made of the cost of this bridge on the counterbalanced system, as compared with that of the other types of bridge which might be employed.

(1) *Ordinary Lifting Bridge.*—In this case, where the counterweight forms part of the heel end of the bridge, it is necessary that the shaft or axle should pass through the center of gravity of the whole, otherwise the bridge will not balance in all positions. Hence, in order that the bridge when raised may stand sufficiently back from the opening, the center must be placed much further back from the edge of this opening than in the counterbalanced bridge. This, added to the necessity of giving the heel end considerable length to make an effective counterweight, makes the bridge much longer, and therefore more costly than the counterbalanced bridge. In the case taken the saving in the bridge itself and its appliances is about 15 per cent. Again, the greater length of the ordinary bridge requires increased depth, and therefore greatly increased cost in the bridge-pit and foundations, especially as regards pumping and temporary works. In the case taken the saving is calculated to be 30 per cent. The whole saving in first cost, by using the counterbalanced bridge, will thus amount to nearly 20 per cent. Further, the proportionate saving in cost and labor of working is enormous. Taking the pull of the chain to balance exactly the weight of the bridge when down, there is then a saving of 45 per cent. over the ordinary bridge in the effort required to raise it from its place; and after this nearly all that is required in the counterbalanced bridge is the regulation of the motion imparted by the counterweight. The same holds true in the lowering of the bridge. The effect of wind is also an important element to be considered. Owing to the different position of the center the ordinary bridge will stand much higher when raised than the counterbalanced bridge. The effect of the wind pressure on the latter will be only about two-fifths of that on the former.

(2) *Swivel Bridge.*—In order to clear the passage properly when open a swivel bridge must be in general longer even than an ordinary lifting bridge. The masonry from the foundations for roller path, &c., will be at least as expensive. Hence the saving in first cost by using the counterbalanced lifting bridge will be larger; in the case taken it amounted to 34 per cent. The power required for working is greater in a swivel bridge than in an ordinary lifting bridge, and the proportional saving would therefore be greater also.

(3) *Rolling Bridge.*—The first cost of a rolling bridge would be at least as great as that of an ordinary lifting bridge. The

saving in first cost would therefore be as large, while the difference in cost of working would be much larger, since the rolling bridge, in addition to the effect of friction, has to be lifted bodily through a certain space each time it is opened, in order to pass it over the roadway behind. Both the latter types of bridges have also the disadvantage of requiring much more room to work in, the lifting bridge being the only one which occupies no more space when open than when closed. This is of importance in the case of crowded quays or narrow causeways. On the other side may be set the effect of wind—which, however, in practice is not found to be very important even in the case of a road bridge. In an open railway bridge it is inconsiderable, and it will always be much less in the case of a counterbalanced than of an ordinary lifting bridge.

[We will add that Mr. Browne, whose address is No. 6 Delahay street, Westminster, London, is desirous of introducing his invention into this country. Parties having facilities and disposed to do so, may address him as above, or communicate with M. N. Forney, No. 73 Broadway.]

Contributions.**Interchange of Cars—Further Experience and Suggestions.**

TO THE EDITOR OF THE RAILROAD GAZETTE:

I was much pleased with the contribution on the subject of interchange of cars in your number of November 29th. This is a subject which has troubled the minds of many railroad managers, and which seems yet far from being arranged satisfactorily. If each road would do exactly as it should, there would be much less loss, but managers and employees are human, and the good or convenience of their own road comes up before them, and they lose sight of the fact that some other one is wronged. It may be that they realize the fact that some other road is treating them in the same way, and

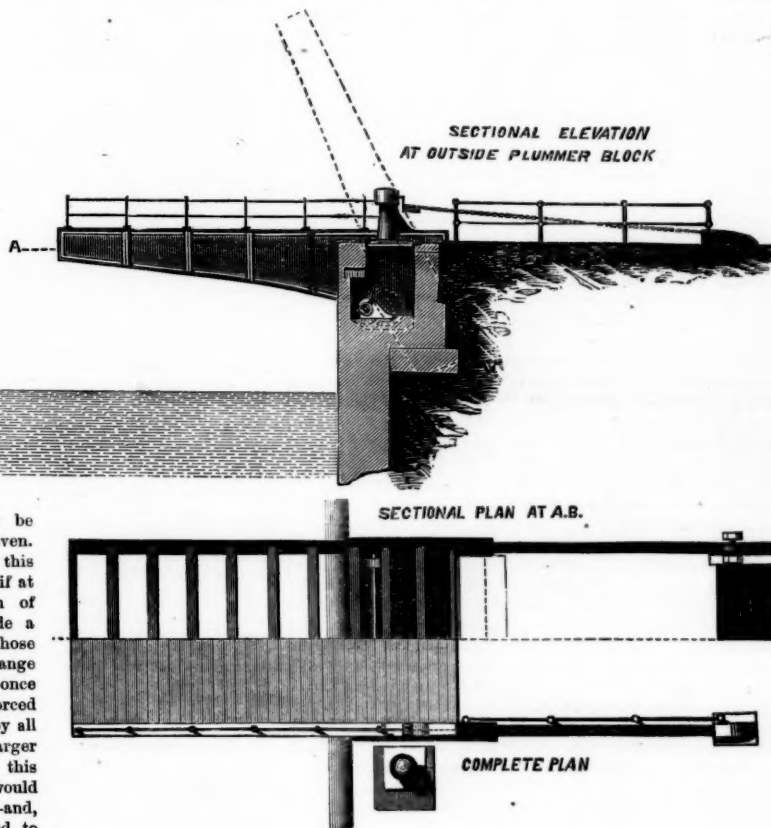
made. This neglect comes largely from the manner in which employees have been educated on these subjects. If managers have from the first insisted on doing pretty nearly right, in the matter of car exchanges, the tendency will be for employees to act in the same way; but if little is cared at headquarters, little pains will be taken in any other quarters. Usually the cars of a directly connecting road are returned much more promptly than those of one at a distance, with two or three roads intervening. Is not that one point to be taken into consideration, and cannot some plan of direct responsibility be formed? As, for instance, A turns cars over to B and holds him responsible for them fully. If B turns them over to C, and C to D, B must arrange with C, and C with D, to return the cars to them promptly. In this case a per diem charge must be made, or a mileage rate for the distance to point of destination, with an allowance of a certain number of days, and if that is exceeded let there be a charge per day. It may be best to have this increase as time increases, as your article suggests; at any rate, let A collect directly of B, B of C, and C of D, etc.

If this could be enforced, B, C and D would use as much diligence in getting cars belonging to A back as they do in getting their own. There would be some complication of accounts, but the evil of that would be less than the loss of the use of the cars.

The demurrage of the "Blue," "White" and "Red" lines, and the fines for mis-sending, if enforced, might aid in prompt movement of their cars; but they have some other faults to overcome which bear directly on that point.

At certain points they have agents, independent of the railroad companies, who are paid by a commission for each and every car they bond or send.

Mr. X. is agent, for instance, at "Sitka," where the Asiatic



though intentions may be good, they want to get even. No one road can remedy this evil. It must be done, if at all, by some association of roads which shall include a very large percentage of those that have much interchange of cars. The plan, when once agreed upon, must be enforced by all and lived up to by all agreeing to it. If the larger roads would arrange in this way the smaller ones would doubtless fall into line—and, in fact, could be forced to by refusal of the others to exchange cars. To be sure, in many cases this would inconvenience the line refusing, but it would be submitting to a small evil for the removal of a greater. It is probable that a close examination will show that the large roads are quite as slack as the small ones in the return of cars, and that if they all agree to execute a plan, the major part of the trouble will be overcome.

Now as to the plan: The general principles laid down in the article mentioned are correct. All managers will agree that foreign cars should be returned home as quickly as possible; that as soon as possible after being unloaded they should be loaded (if loads are to be had) for home or some point on the road towards home, and that the owner should receive proper remuneration for the loss of the use of the car. The question is, how to get the last, and by so doing cause roads to live up to the two former principles? When cars get a great way from home the road using them thinks that the owner does not know who has the car, and if it does, it makes little difference; and it also thinks that such road will not be likely to get any cars belonging to the road using this car, if disposed to retaiate. A case in hand: A car with railroad iron passed over several roads, reached the destination, was sent to "the front," got off the track and down the bank. It was not convenient to get it up, and there it lay for several months. At last it was got up and sent home. In the meantime the car was sent, but it did no good. Another car was lost sight of by its owners, and, after a search of nearly a year, it was found doing service on some distant roads. No pains were taken to return the car, and but for its accidental discovery it doubtless would have been worn out and no compensation received.

Hundreds of instances of this kind could be mentioned, many even where cars have been destroyed and no returns

& North American Railway is crossed by one or two other lines, and thus is a competing point. Mr. X. is anxious to get his commissions, and in order to do so must always have cars on hand; so without the knowledge of either the Asiatic & North American or the other lines he orders from the nearest distributing point a lot of Blue, Red or White cars. They come billed to him, go upon a side track and remain there it may be for weeks or months. If he has looked about and found a load in a town 50 or 100 miles distant, out goes a car, billed to the party wanting it, and in time it is on its winding way with a load. Now the movement thus far has been without the knowledge of the railroad company, but they must pay 1 1/4 cents per mile for each mile moved and are held as to blame for the long time the cars remained on the side-track at "Sitka." Many times the empty car goes to "Sitka" via the Asiatic & North American Railway, while it returns with its load over a competing line, thus requiring the Asiatic & North American line to pay for use of an empty car, while really it does it no good. This state of things is not confined to the "Red," "White" and "Blue" lines, but exists with all and in too many cases.

The railroad companies must put a stop to this kind of movement of cars, and insist on distributing and furnishing their own cars in their own way before any plan of demurrage can be enforced. It certainly would not be just to require the Asiatic & North American to pay for the delay of 10 or 20 Blue, Red or White cars when Mr. X. only was to blame in the matter. Do away with the commissions, let the railroad agents be the agents for the various lines, and there will be less delay in "line" cars at least.

The proposition for direct responsibility and demurrage for delays over a fixed time is not new, but as yet has not been tried to any extent.

In cases of roads where the distance run is not too great,

or where cars are not likely to get upon other lines, the matter is easily arranged by keeping the car balance good and using cars irrespective of ownership. This has worked well in the case of some of the Western roads, and saved much unnecessary hauling of empty cars and switching. It will hardly do, however, to start out for a general interchange on this basis. It is to be hoped that the Railway Association of America will not drop the subject until the problem is solved. X.

Hot Air and Steam Heaters.

TO THE EDITOR OF THE RAILROAD GAZETTE:

A paper read by Carl Pfeiffer, C. E., at the recent meeting of the American Health Association, on "Sanitary Relations and Health Principles of Architecture," though presenting many valuable suggestions, especially on the subject of warming and ventilation, nevertheless contains so many misconceptions or misstatements of principles involved as to seriously mislead those who may attempt to arrange their warming apparatus on his recommendations. Mr. Pfeiffer's statement that air is our "chief food," "to be digested and changed into nourishment," is an error which should not pass unnoticed. As a scientist he ought to know that air is not food—that it does not nourish or build up, but that its function is to break down and disintegrate—to destroy. Not that he over-estimates the importance of an abundance of fresh air, but that misapprehending its function he impairs the force of all he says. Again, in speaking of sleeping in cold rooms, he quotes from a medical journal that "sleeping in an atmosphere indoors under that (45 degrees) is always positively pernicious," while he admits that "a person may sleep out of doors with impunity when the thermometer is many degrees lower," because the out-door air is full of life, etc., hence gives a vigor of circulation which keeps the whole body warmed to its natural point, resisting cold and all diseased conditions." If the out-door air is so beneficial, all we have to do is to have our rooms open enough to secure the same advantages. All who sleep in rooms properly open to the external air in the coldest weather will testify that they not only sleep warm, but that they get up in the morning fresher and in better condition generally. The desiderata, while in bed, are sufficient clothing and abundance of air, without reference to its temperature, except perhaps in cases of bad lungs.

But our concern is chiefly with Mr. Pfeiffer's treatment of the subject of warming houses, and especially with what he says of hot-air furnaces. Probably nine-tenths of all the furnaces in use in the country are those known as hot-air furnaces—that is, from which the heat is obtained without the intervention of water or steam. Of course any sweeping condemnation of these, if well founded, calls for the substitution of other means of heating, and as the expense of steam or hot-water arrangements is much greater—three or four times as great as the cost of good hot-air furnaces—it becomes a very serious matter; so if we can show that the hot-air furnace can be so constructed and managed as to avoid the objections which Mr. Pfeiffer recites, we shall do good service to many who, not being familiar with the principles involved, may chance to read the proceedings of so authoritative a body as the American Health Association.

His objections to hot-air furnaces are "their application of fire heat to metallic surfaces is a direct one, without the intervention of either water or steam, which, in his view, make it utterly objectionable;" that "dizziness, coldness and languor in the extremities (?), feebleness of pulse, etc., are some of the symptoms everywhere observed to accompany this mode of heating," etc.; that "air heated thus artificially without contact of water acquires an aridity which causes it to absorb moisture from the skin, lungs, etc.,"—all of which is true enough; but in what respect, I ask Mr. Pfeiffer, does the heat from an iron pipe filled with hot water or hotter steam differ from heat from an iron cylinder filled with hot air; and why or how does the heat from the furnace cylinder cause the air to lose any more of its humidity than that from hot steam pipes? Mr. Pfeiffer quotes Faraday as saying that "65 deg. by the latter mode, will not by the steam pipe heating cause the air to lose any of its humidity, but by the former mode the air requires vapor of water to correct it." Faraday may have said this, but it is so inexact as to make me doubt it; for in his *Manipulations* (2d edition page 376) he gives a table showing the proportion by volume of aqueous vapor existing in any gas standing in contact with water at various temperatures and at mean barometric pressure; that is, the quantity which any gas will hold in solution, so as not to appear as vapor.

By this table it appears that at 40 deg. the proportion is .00933; at 60 deg., .01866, and at 80 deg., .0353, or about double for every 20 deg. of temperature. Of course the air does not lose any of its moisture by raising its temperature, but it acquires the power of absorbing or dissolving more and in the ratio above quoted, and this is why air, whether heated by a hot-air furnace or by hot-water or steam pipes, requires a supply of water to keep it at a proper degree of humidity for health and comfort—that is near the dew point. If a hot-air furnace is constructed, as the best of them are, so as not to have the fire-box in contact with the air of the chamber which supplies the house, and is supplied with sufficient evaporating surface, the warm air in the house may be in all respects as pleasant and wholesome as that warmed by steam or water pipes.

When the radiating cover of the fire-box is made to come down around the box to the bottom of the hot-air chamber and some five or six inches larger all round than the box, none of this cover or cylinder ever becomes "heated to a glow," or hot enough to scorch the particles of fibre and dust floating in the air. Its original cost, as I have said, is but about one-fourth that of steam-heating apparatus; it is less liable to get out of order, requires less skill in its management and less fuel to supply the requisite heat. Mr. Pfeiffer's statement that dry hot air promotes a more rapid decom-

position of the organic substances floating in it than moist hot air is far enough from the truth. Everybody knows that fruits and meats are cured for long keeping by exposure to dry hot air. Mr. Pfeiffer makes other inaccuracies of statement which are obvious, and his paper is faulty as well in what he omits as in what he has told. M.

European Freight Tariffs.

From Schwabe's "Ueber das Englische Eisenbahnwesen" (On Railroading in England) we translate the following chapter on freight tariffs, adding the interesting notes concerning Belgian practice made by the translators into French. We published some time ago the chapter relating to passenger tariffs. The original and the Belgian notes together give a very good view of English, German and Belgian practice:

During the year 1867, the receipts from freight traffic on the railroads of Great Britain reached the following figures:

In England.....	\$94,534,621,	or	\$8.484 per mile.
In Scotland.....	12,005,854,	or	5.296 " "
In Ireland.....	3,599,638,	or	1.889 " "

Total.....\$110,139,113, an average of \$7.093 per mile a

These receipts are divided as follows:

Transportation of cattle, about.....	2.14 per cent.
Transportation of coal, coke, and other mineral products.....	33.07 per cent.
Transportation of general merchandise.....	64.79 per cent.

The Prussian railroads gave, for the same period, average receipts of \$7,842 per mile for the transportation of merchandise, vehicles and cattle. The comparison, therefore, is in favor of the Prussian lines; but it should be remarked that in the statistics of the Board of Trade the receipts arising from the transportation of carriages, horses and dogs by passenger trains are included in the receipts from passenger traffic, which diminishes the difference indicated above.

With regard to rates, freight is divided into two classes, according as it is transported by passenger trains or by freight trains.

Only light packages—"parcels," as they are called—are carried by passenger trains, as the high amount of the customary charge prohibits the transportation of heavier packages.

All freights carried by freight trains, with the exception of coal and coke, have the following classification:

1. Mineral class.
 2. Special class.
 3. Classes of merchandise, 1 to 5.
- This classification is accepted by all railroads belonging to the "Railway Clearing-House" *d.* General variations from it are avoided as much as possible; but if generally recognized as necessary, they are introduced only on the 1st of January of the following year. However, two or more railroads are permitted, with the consent of the railroads connected with them, to vary this tariff to suit their interests.

The classification of the Railway Clearing House presents no peculiarities, and is only a further proof that, in their essential features, the principles of classification are the same in all countries, and that such uniformity is the result of tradition or of the logic of things. Nevertheless the adoption, on all the lines connected with the Clearing House, of a classification which is uniform and as nearly as possible invariable is a fact worthy of remark, and imitation, as uniformity contributes to the facilitation of traffic, as well with the public as with those engaged in transportation. In Germany it frequently happens that the railroads introduce sudden changes in their classifications, and that one road even has several classifications for the different lines of which it forms a part.

The English rates bear witness to the relations which exist between the English railroads and the State, that is to say, Parliament. In Prussia, as in most of the Continental countries, the railroads are considered as institutions of public utility, and they are required, while keeping in view their own interests, to treat all their customers in the same way, by giving them the same facilities for transportation and the same rates. The monopoly of the railroads is thus paralyzed by the State's oversight. In England, on the contrary, the railroads have entirely the character of commercial enterprises, and the competition produced by the chartering of new lines is the principal means exercised by Parliament to moderate the pretensions of the companies. In England, as elsewhere, there are nevertheless limits set to the amount of rates. One who visits this country for the first time is even agreeably surprised, at first, by the publicity given in stations to the rates charged for each unit of transportation in the different classes of tariffs.

But the manner of this publication, and still more a closer

a. On the Belgian State lines, the total receipts from freight, including equipments, etc., was, in 1867, \$4,308,417, or \$7.800 per mile. For the whole Belgian system the receipts per mile were only \$5.580 per mile.—NOTE BY THE BELGIAN TRANSLATOR.

b. For the year ending with September, 1872, the average receipts per mile from freight were \$6.512 on the 2,194 miles of Massachusetts railroads; \$10,533 per mile on the 5,919 miles of New York railroads; for the year ending with June, 1872, they were \$7.140 per mile in Ohio and \$6.957 in Illinois.—NOTE BY THE AMERICAN TRANSLATOR.

c. These figures are only approximate, because several companies do not keep separate accounts of coal traffic and general merchandise traffic. It follows that the figures given for coal and coke are too low.—AUTHOR'S NOTE.

d. We have neglected to consider minutely the "parcels traffic," since on the Prussian railroads this traffic is done by mail for the most part, and therefore has not special interest here. What extent this traffic reaches on English railroads may be judged by the fact that during Christmas week of 1870 about 35,000 parcels—packages of game, poultry, etc.—were received at the Bishopsgate station of the Great Eastern.—AUTHOR'S NOTE.

e. At present ninety-seven railroad companies in England, Scotland and Ireland belong to the Railway Clearing House in London.—AUTHOR'S NOTE.

f. In the English classification, the order of classes, with relation to the rates of the tariffs, is the opposite of that which has been adopted in Germany, in France, in Belgium and in America. But, aside from this difference, which is in appearance only, the classification there is similar to that of England in its essential features. There is only a difference with regard to the number of classes. This, aside from goods and high excess and special rates, we count:

- | | |
|------------------------|----------------------------------|
| In Germany. | I. A normal class. |
| | II. A class at a reduced charge. |
| | III. Four car-load classes. |
| In Belgium and France. | Four classes. |
| In America. | A special class. |
| | Four classes. |

g. The inconvenience noted here by the author exists in Belgium likewise, though in a less degree. However, it is certain that great progress has been made in Belgium within a few years towards a uniform classification. The classification of the State Railroads is adopted very generally at this time in the interior of the country, as well in the interior service as in mixed service. Unfortunately it is not the same with international traffic, and from this grave inconvenience arise, in view of the competition which certain foreign products cause, by the aid of a lower tariff, resulting from a different classification. In this case the difference of classification causes certain industries to lose the advantages due to their geographical situation, to the profit of similar industries in adjoining countries.—NOTE BY THE BELGIAN TRANSLATOR.

h. At the stations where we have noticed this announcement, it was painted white in oil on a blackboard.—AUTHOR'S NOTE.

study of the English system of rates, makes it evident that the publicity given to the maximum rates fixed by Parliament is without injury to the railroads and without advantage to the business public.

According to Galt *h.* the maximum rates established by Parliament, (which, however, differ somewhat from each other on different lines), on the average are as follows:

First Class.—Manure, limestone, ballast material, etc.; at the rate of 2.79 cents per mile.

Second Class.—Coal, coke, charcoal, building stone, bricks, iron ore, pig iron, etc.; at the rate of 4.68 cents per ton per mile.

Third Class.—Sugar, grain, flour, potatoes, linens, cotton cloth, yarn, crockery, timber, boards, etc.; at the rate of 6.54 cents per mile.

Fourth Class.—Cotton, wool, drugs, fish, manufactured articles and other merchandise, at the rate of 8.4 cents per mile.

A simple comparison with the North-German customary maximum rate of 4 cents per ton per mile with a fixed charge of 25 cents per ton, for goods of the normal class, (Class I), shows the high rate of the English tariff, and makes it evident that the maximum rates fixed by Parliament in chartering the roads cannot be considered as a limitation.

English legislation confirms this. In the "General Railway Clauses Consolidation Act," of the year 1845, there is the following:

"Whereas it is of advantage to the railway companies to have power to modify the charges for carrying goods on their lines, according to circumstances—provided that such charge be not made to the prejudice or advantage of individual interests—every railway is authorized, within the limits of the provisions made by law and its charter, to modify at will, from time to time, the special tariffs fixed in the charter, on all or part of its lines, always, however, without consideration of persons, and on one basis—be it ton, mile or otherwise, according as the transportation may be of passengers, freight, or other kind, carried in similar vehicles and by a similar machine, under the same circumstances and over the same lines, and to the exclusion of any rebate or decrease of rate, direct or indirect, in favor of any company or individual."

The liberty to fix rates permitted to the English railroads is still more strikingly evident in the provisions of their charters authorizing the collecting of additional charges for loading and unloading, storing and delivering goods, and other extraordinary services. The maximum rates fixed by Parliament should therefore be considered as the charge for transportation proper, while for the expenses at the shipping and receiving stations, additional charges—terminal expenses—are made. Still less have the laws passed by Parliament prevented special tariffs. The act of Parliament of July 10, 1854, on the regulation of traffic on railroads and canals says, indeed:

"Every railway and canal company is bound, so far as lies in its power, to afford all possible facilities to the traffic entrusted to it for transportation, in regard to receiving, forwarding and delivering, and to secure the return of cars, vessels, and other vehicles."

"None of these companies may grant an inequitable advantage or preference either in favor of an individual, a corporation, or a special kind of traffic, so that no company may exercise an unlawful and unjust discrimination in favor of or against any individual, corporation, or species of traffic, whatsoever."

"Every railway or canal company which owns and works railways or canals which form an integral part of an unbroken railway or canal route, or a canal and railway connection, which at the terminus has a station or quay near the terminus, station or quay of another company, must afford all suitable and reasonable means for the transfer and receipt of all goods arriving by the canal or railway, and that without unnecessary delay, without favor or preference, without disfavor or prejudice, so that the public which wishes to make use of the service of the railways and canals in a continuous, unbroken route, may meet no hindrances, but all possible facilities, on the railways and canals of the different companies."

However, it is a well known fact that the great feature of the tariff system of the English railroads consists in the *private terms*, or, in other words, in a tariff system according to mercantile principles, since for all transportation of considerable importance special contracts are made between the shipper and the railroad company, in which the rate of the tariff depends solely on the agreement of the contracting parties, and is determined, aside from the competition of other lines or of vessels, only by the amounts shipped at one time, the total amount shipped per year, by the consideration whether the transportation is to be had in Summer or Winter, etc. *k.*

The consequence is that the differential tariffs *l.* in a certain sense legalized by the legislative provisions quoted, are extensively applied, on account of the sharp competition between the numerous railroad lines, as also between the railroads and transportation by vessels.

We see from this, that although maximum rates have been imposed by Parliament in chartering the English railroads, they have been eluded by arbitrarily assessing the expenses of handling and other attendant charges; we see also that while legislation declares that rates shall be established without distinction of persons, all the rates concerning shipments of considerable importance are fixed by private contracts. When, in addition, we see that there is no tribunal existing to enforce the regulations concerning rates which Parliament has made, (the Board of Trade has nothing to do with rates), and that in case these regulations are violated there is no other remedy than to appeal to the courts, we would be justified in believing, judging by analogous circumstances in Germany, that the press would be filled with complaints against such a condition of things; and yet it is not so.

It is true, however, that the almost absolute secrecy which

h. William Galt.—"Railway Reform."

i. The American railroads seem to possess complete independence in making rates, since they do not hesitate in their published tariffs to claim the right to change them at their pleasure. In a tariff for this year [1871] of the New York Central & Hudson River Railroad Company, it is stated in these words:

"The company reserves the right to make at its pleasure any change in the rates of classification—rail or steam."—AUTHOR'S NOTE.

j. The maximum rates imposed on the railroads chartered in Belgium are generally those of the State Railroad at the time the charter was granted. Hence the very great variety noticed in the tables of rates. This system was made a principle in the table of rates adopted February 23, 1866, for the construction and working of railroads chartered in Belgium.—NOTE BY THE BELGIAN TRANSLATOR.

k. So far as we have been able to learn, and also as is confirmed by the investigation cited by Moussette, the English railroad companies treat directly with the public for the transportation of freight; receive, forward and deliver the goods themselves, and usually make the charges directly, as is done in Germany. The carting of freight to and from the railroad—the street transportation—is generally done by the railroads themselves, some of which own hundreds of horses for this purpose, with the necessary stables, warehouses, etc.—AUTHOR'S NOTE.

l. The author gives to this expression, as certain French publicists have done, the meaning of private tariffs, favorable rates, and not that of tariffs decreasing with the distance, which is the sense in which we have used it (see Note, RAILROAD GAZETTE, page 389). M. Jacquin, who uses it as we do, makes the following remark relative to this expression in his *Traité d'exploitation des chemins de fer* ("Treatise on Working Railroads"):

"In a country like France, where ideas of equality enjoy undeniable favor, words have a great value, and from this point of view a more unfortunate word than differential cannot be found, since it is scarcely intelligible of itself, and raises ideas of inequality and discrimination."

As we see, it is with these ideas of it that this word has been adopted in Germany.—NOTE BY THE BELGIAN TRANSLATOR.

surrounds English freight tariffs has not a little to do with this state of things. The periodical press, such as *The Railway News*, *The Economist*, *The Engineer*, any journal you may select, not infrequently complain of the high rate of passenger fares, but scarcely ever make any mention of freight rates.

It is the same with other English publications concerning the English railroad system. For instance, Galt, in his elaborate work, gives very little attention to them. Still more closely, however, is this secret kept by the railroads themselves. When printed tariffs exist, they apply only to local traffic; as to the most important traffic, which is done at private rates, the railroads guard so carefully against competition that any information can be obtained only with the greatest difficulty. The railroads are forced, as it were, to keep from the public any information which might serve as cause for complaint. Complaints, however, are but seldom heard. To the English business public the opinion that the railroads are a business enterprise like any other, and that the system of rates of any road is determined by its own interests only, seems so natural that, notwithstanding the unsatisfactory result of appeals to the courts, the Legislature has not hitherto recognized the necessity of striving for a reduction of tariffs in any other way than by self-help—by inviting the creation of a competing route.

After these general considerations, let us examine the tariffs themselves, of which the local tariff of the Great Eastern and the coal tariff of the Great Northern are given below:

Local Tariff of the Great Eastern Railway.

Distance, in miles.	1st class, Per ton.	2nd class, Per ton.	3rd class, Per ton.	4th class, Per ton.	5th class, Per ton.	6th class, Per ton.	7th class, Per ton.
12.....	2 0	4 2	8 4	9 10	15 0	18 4	
24.....	3 0	6 4	11 8	13 4	15 0	20 10	25 10
47.....	4 11	10 10	15 10	18 4	21 8	27 6	34 2
71.....	5 6	13 4	18 4	23 4	27 6	33 4	41 8
94.....	6 11	13 4	21 8	26 8	32 6	41 8	50 10
117.....	8 4	14 2	25 0	32 6	38 4	47 6	59 2
141.....	9 10	16 8	28 4	33 4	40 0	55 0	67 6

REMARK.—The charges of classes 1 to 5 include the carting of goods from and to stations. If the carting is done by the shipper or consignee, the above rates are reduced within London 2s. per ton, and outside of it 1s. per ton.

Coal Tariff of the Great Northern Railway (the Shipper Furnishing Cars.) n.

For short distances, 1d. per ton per mile, plus a fixed charge of 6d. per ton.
For distances from 70 to 100 miles, 3/4d. per ton per mile.
Up to 150 miles, 1/2d. per ton per mile.
Up to 200 miles, 3/4d. per ton per mile.

m. In Belgium the greatest publicity seems to be given to the tariffs, at least for the traffic in which the State Railroad participates, at whose stations the regular schedules may be had. These official schedules, the publication of which forms the subject of a contract made with a Brussels publisher, are often very old, and do not contain the latest modifications, which therefore are not in any way brought to the knowledge of the public. It is to be regretted that we do not have in Belgium a periodical publication analogous to the excellent *Recueil general des tarifs des chemins de fer francais* (General Collection of French Railroad Tariffs), published quarterly by Messrs. A. Chaux & Co., at Paris, independent of the supplementary numbers which give the modifications which have been made and appear between the quarterly numbers. Each quarterly number supplements the preceding one as well as the supplementary numbers.—NOTE BY THE BELGIAN TRANSLATOR.

n. The local rates here given for the longest distance (for which they are lowest) are, counting gold at 110 and reducing the ton of 2,240 pounds to the usual American ton of 2,000 pounds, at the following rate per ton per mile: Minerals, 1.66 cents; special class, 2.84 cents; first class, 4.82 cents; second class, 5.67 cents; third class, 6.81 cents; fourth class, 9.36 cents; fifth class, 11.49 cents. Or, it is equivalent to a tariff from New York to Albany, from Philadelphia to West-ington, from Detroit to Kalamazoo, from Chicago to Clinton, Iowa, Galva, Ill., Madison, Wis., and Fort Wayne, Ind., as follows: Minerals, 1 1/2 cents per hundred pounds; special class, 20 cents; first class, 34 cents; second class, 40 cents; third class, 48 cents; fourth class, 66 cents; fifth class, 81 cents.

The coal tariff for a distance of 30 miles would be 2.37 cents per long ton per mile; 70 to 100 miles, 1.67 cents; up to 150 miles, 1.12 cents; up to 200 miles, 0.84 cent per ton per mile—equivalent to 1.12 cents per ton from Scranton to New York, \$1.65 from Pottsville to Philadelphia, \$1.50 from Cumberland to Baltimore, and \$1.40 from Wilmington to Chicago.—NOTE BY THE AMERICAN TRANSLATOR.

[TO BE CONTINUED.]

ELECTIONS AND APPOINTMENTS.

—Mr. D. H. Budlong, heretofore Secretary and Treasurer, has been chosen President of the Memphis, Carthage & Northwestern Railroad Company, in place of L. P. Cunningham.

—Mr. E. T. Morse of Jonesville, Vt., has been appointed Roadmaster of the Montpelier & Wells River Railroad.

—Mr. A. Spaulding has been appointed Superintendent of the Otter Lake Division of the Flint & Pere Marquette Railroad, in place of Robert Webb, resigned.

—The directors of the Chicago & Lake Huron Railroad Company have chosen the following officers for the ensuing year: President, W. Bailey Lang, New York; Vice-President and General Manager, William L. Banerott, Port Huron, Mich.; Treasurer, Sidney W. Hopkins, New York; Secretary, E. B. Taylor, Port Huron, Mich.; Chief Engineer, Charles Palmer, Port Huron, Mich.; Counsel, L. D. Dibble, Battle Creek, Mich.; Superintendent, E. B. Taylor, Port Huron, Mich.

—At the annual meeting of the Providence & Springfield Railroad Company in Providence, R. I., December 1, the following directors were chosen: William Tinkham, Edward Pearce, Albert L. Sales, Amos N. Beckwith, Moses B. I. Goddard, James O. Inman, Horace A. Kimball, L. M. E. Stone, Amasa Sprague, Milton A. Clyde, John L. Ross. At a subsequent meeting of the directors, William Tinkham was elected President; L. M. E. Stone, Treasurer and Superintendent; Jabez C. Knight, Clerk.

—At the annual meeting of the Utica, Chicago & Susquehanna Valley Railroad Company in Utica, N. Y., December 9, the following directors were chosen: Lewis Lawrence, Miles C. Comstock, Daniel Crouse, Hiram Hurlburt, Utica, N. Y.; Naaman W. Moore, Saugonit, N. Y.; George W. Chadwick, Chadwick, N. Y.; Daniel B. Goodwin, Waterville, N. Y.; Deville White, Sherburne, N. Y.; John Brisbin, William E. Dodge, Percy R. Pyne, Samuel Sloan, Moses Taylor, New York City. The board subsequently re-elected the old officers, as follows: President, Samuel Sloan; Vice-President, Lewis Lawrence; Treasurer, A. J. Odell; Secretary, Fred W. Chambers; Executive Committee, Moses Taylor, William E. Dodge, John Brisbin, Lewis Lawrence. The road is leased by the Delaware, Lackawanna & Western Company.

—On the 11th of December Mr. J. A. Bentley was chosen President of the Sheboygan & Fond du Lac Railroad Company, in place of James F. Joy. Mr. Bentley acts also as Superintendent, and Mr. L. A. Emerson is made Assistant Superintendent.

—Mr. George L. Carman has been appointed General Freight and Ticket Agent of the Peoria & Rock Island Railroad, with office at Peoria, Ill., in place of Mr. J. A. Grier, of Davenport, resigned. Mr. Carman took office December 11. Statements of car mileage and coupon ticket reports are to be addressed to H. C. Whitridge, Auditor, Peoria, Ill.

—The National Railway Company of New Jersey has been reorganized with Joseph T. Crowell, of Rahway, N. J., as President, and Robert B. Corson, of Philadelphia, as Secretary and Treasurer.

—At the annual meeting of the Holly Springs, Brownsville & Ohio Railroad Company, in Brownsville, Tenn., December 5, the following directors were elected for the ensuing year: W. W. Bond, A. H. Bradford, J. G. Haywood, J. L. Poston, J. M. Rutledge, J. B. Watkins, J. P. Wood, Brownsville, Tenn.; W. H. Craig, Dr. J. P. Smith, Friendship, Tenn.; J. B. Jilton, D. H. Thomas, Johnson's Grove, Tenn.; Smith Parks, Newbern, Tenn.; J. A. Hill Somerville, Tenn. Messrs. Craig, Rutledge and Thomas are new directors, replacing J. Fentress, C. N. Gibbs and J. F. Sinclair. The board re-elected the old officers, as follows: President, Dr. J. D. Smith; Vice-President, J. P. Wood; Secretary and Treasurer, J. M. Rutledge.

—The board of directors of the Baltimore & Ohio Railroad Company met in Baltimore, December 10, and unanimously re-elected Mr. John W. Garrett President and John King, Jr., Vice-President for the ensuing year, which will be Mr. Garrett's sixteenth year of service as President.

—At the annual meeting of the Richmond & Danville Railroad Company in Richmond, Va., December 10, Mr. A. S. Buford was re-elected President, and the following directors were chosen: H. H. Marshall, W. L. Owens, F. R. Scott, A. Y. Stokes, Richmond, Va.; W. T. Sutherland, Danville, Va. Mr. Scott is a new director, replacing J. R. Edwards.

—At the annual meeting of the Boston & Maine Railroad Company at Lawrence, Mass., December 10, it was resolved to increase the number of directors from seven to nine, and the following directors were elected: George C. Lord, Nathaniel J. Bradley, John F. Osgood, Boston; James E. Nichols, Haverhill, Mass.; Daniel G. White, Lawrence, Mass.; Amos Paul, South Newmarket, N. H.; William S. Stevens, Dover, N. H.; Samuel E. Spring, Portland, Me.; Nathaniel W. Farwell, Lewiston, Me. Messrs. Osgood, Nichols, Stevens, Spring and Farwell are new directors, replacing E. J. M. Hale, John E. Bickford and Cyrus Wakefield (deceased). At the meeting 31,622 shares were represented and the successful ticket, which was that supported by the present management, received about 26,000 votes.

—The first board of directors of the Norfolk & Bristol Railroad Company is as follows: F. W. Bird, J. G. Hartshorn, H. W. Tilton, Walpole, Mass.; Thomas Proctor, A. W. Harris, James Bacon, Wrentham, Mass.; H. N. Daggett, H. F. Barrows, Felix G. Whitney, Attleboro, Mass.; James Pollard, Norfolk, Mass.

—At the annual meeting of the Maryland & Delaware Railroad Company in Easton, Md., December 10, William Slaughter, Dr. A. Hardestad, Dr. G. W. Goldsborough, J. P. Manlove, David Knotts, Samuel Hambleton and J. A. W. Powell were chosen directors. Ex-Gov. Thomas, Edward Lloyd and William C. Satterfield are State directors, and Henry P. Hopkins is director on behalf of Talbot County. C. W. Huntington was re-elected President, John W. Scott, Treasurer and Secretary, and John L. Caldwell, Superintendent.

—The organization of the Shenandoah & Ohio (formerly North River) Railroad Company has been completed by the election of the following officers: President, Gen. S. G. French; Vice-President, R. N. Pool; Treasurer, E. Border, Philadelphia; Secretary, R. C. Thomas, Philadelphia; General Superintendent, H. M. Clay. The company's address is Harrisonburg, Va.

—Mr. W. H. Lewis has been appointed Master Mechanic of the Northern Pacific Railroad at Brainerd, Minn., in place of R. B. Small, resigned.

—Mr. F. E. Hinckley, Receiver of the Gilman, Clinton & Springfield Railroad, will act as General Manager of the road. He has appointed the following officers: Assistant Superintendent, D. H. Conklin; General Freight Agent, J. D. Hudson; General Passenger Agent and Auditor, Anthony Pickard.

—The new board of directors of the Boston & Maine Railroad Company met December 13 and re-elected Nathaniel G. White, President, and Chauncey P. Judd, Clerk.

—Mr. William D. Rowley has been appointed Master Mechanic of the Kansas City, St. Joseph & Council Bluffs Railroad, in place of Mr. H. L. Cooper, who has gone to the Hannibal & St. Joseph as Superintendent of Machinery. Mr. Rowley has been for some time Master Mechanic, Central Branch, Union Pacific road.

—Mr. George Bennett, General Freight Agent of the Lake Ontario Shore Railroad, has been appointed Superintendent of the road in place of E. A. Van Horne. Mr. Bennett will continue to perform the duties of General Freight Agent.

TRAFFIC AND EARNINGS.

—The earnings of the St. Louis & Southeastern Railway for the month of November were: St. Louis Division, 1873, \$57,638.24; 1872, \$64,638.90; decrease, \$7,000.66, or 10 1/2 per cent. Nashville Division, 1873, \$40,609.34; 1872, \$34,016.32; increase, \$6,593.02, or 19 1/2 per cent. Total, 1873, \$98,247.58; 1872, \$98,715.22; decrease, \$467.64, or 0 1/2 per cent.

—The earnings of the Milwaukee & St. Paul Railway for the first week in December were: 1873, \$163,500; 1872, \$138,638; increase \$24,862, or 18 per cent.

—The earnings of the Denver & Rio Grande Railway for the month of November were: passengers, \$15,743.55; freight, \$18,254.69; total, \$33,998.27.

—The earnings of the Richmond & Danville Railroad for the year ending September 30, 1873, are:
Earnings (\$4.883 per mile).....\$957,129.42
Expenses (53 1/2 per cent).....509,759.94
Net earnings (\$2.282 per mile).....\$447,369.48

There is an increase over the previous year of \$125,037.44, or 15 per cent., in gross earnings, and an increase of \$83,523.79, or 23 per cent., in net earnings. The earnings of the leased North Carolina Railroad are reported separately.

—The earnings of the Kansas Pacific Railway for the fourth week in November were: passengers, \$24,050.41; freight, \$34,633.28; mails, \$2,055.32; total, \$60,739.01. Of this amount, \$5,356.84 was for transportation of troops, mails and government freight.

—The shipments of through freight eastward over the Central Pacific Railroad for the month of October were: from San Francisco, 3,396 tons; from Sacramento, 212 tons; other interior points, 343 tons; total, 3,951 tons, or 395 car loads. The principal items were: tea, 1,396 tons; wool, 715 tons; ripe fruit, 521 tons; barley, 437 tons. The shipment of barley east by rail is a new feature.

—The wheat exports from San Francisco by water for the five months ending November 30 were: 1873, 3,750,723 cents (100 lbs.); 1872, 4,364,157 cents; decrease, 613,434 cents, or 14 1/2 per cent. The exports of flour for the same period were: 1873, 209,548 barrels; 1872, 97,081 barrels; increase, 112,467 barrels, or 115 1/2 per cent. Reducing flour to wheat, the exports were 4,316,502 cents in 1873 against 4,626,275 in 1872, the decrease being 6 1/2 per cent.

—The coal traffic of the Pennsylvania & New York Railroad for the business year ending November 30 was: 1873, anthracite, 685,374 tons; bituminous, 294,868 tons; total, 980,242 tons; 1872, anthracite, 580,938 tons; bituminous, 337,192 tons; total, 918,130 tons; increase in anthracite, 104,436 tons, or 18 per cent.; decrease in bituminous, 2,324 tons, or 12 1/2 per cent.; total increase, 62,112 tons, or 6 1/2 per cent.

—The earnings of the Naugatuck Railroad for the year ending September 30, 1873, were:
Earnings (\$8.844 per mile).....\$543,936.71
Expenses (58.77 per cent).....319,708.32
Net earnings (\$3.046 per mile).....\$224,228.39

The earnings of the Erie Railway for the week ending December 7 were: 1873, \$363,987; 1872, \$319,396; increase \$44,591, or 14 per cent.

—The Utah Central Railroad carried during the month of November 17,530 tons of freight, including 7,067 tons of coal.

—The Utah Southern Railroad carried 8,328 tons of freight during the month of November, the principal item being 1,580 tons of ore.

—The earnings of the Boston & Providence Railroad for the year ending September 30, 1873, were:
Gross earnings (\$7.550 per mile).....\$1,822,108.18
Expenses (97.61 per cent).....1,425,003.08
Net earnings (\$5.972 per mile).....\$397,105.10

This is an increase of \$105,708.76, or 6 1/2 per cent., in gross earnings, and a decrease of \$68,241.73, or 14 1/2 per cent., in net earnings. The expenses include a considerable amount spent for new construction and equipment.

—The earnings of the Denver & Rio Grande Railroad (main line, 118 miles) for the first week in December were: 1872, passenger, \$2,254.05, freight, \$2,769.57, total, \$5,023.62; 1873, total, \$8,737.34; decrease, \$3,713.72, or 45 1/2 per cent.

CHICAGO RAILROAD NEWS.

Milwaukee & St. Paul.

An afternoon train has been put on this company's road between Milwaukee and Chicago, leaving Milwaukee at 4:15 p. m., and arriving in Chicago at 7:55. The new arrangement went into effect December 14. This company has just completed a large transfer house at the Union Stock Yards, just outside the city, to facilitate the transfer of freight between this road and the Michigan Central, the Lake Shore & Michigan Southern, the Rock Island and the Illinois Central roads. It is 300 feet in length by 24 feet wide, and was occupied for the first time December 15. It is connected by telegraph wires with the central city offices. The building is located about three blocks west and the same distance north of the Stock Yards.

The Milwaukee & St. Paul road is now transporting from Milwaukee to Chicago from 150 to 175 loaded cars of wheat per day.

Chicago & Northwestern.

Although this company operates some two hundred more miles of road than last year, its monthly pay roll is now about \$17,000 less than last year. The pay rolls have been so reduced since September as to make them about \$122,000 per month less than at that time. They have reduced expenses in the ships, discontinued unnecessary trains and have reduced in all departments so that the net receipts per month, even with the great falling off in passengers and freight, are not particularly bad. There is plenty of lumber in the country, even more than usual at this time of the year, but prices are low, and there is no snow on the ground, particularly along the main line of the road, to facilitate the hauling of it to the railroad track. The grain trade, especially on the Winona & St. Peter, has largely increased, so that the company has been called upon for a large number of extra cars, within the past week, to transport the grain to this city. An effort has been made to remove one of the two daily passenger trains between Chicago and Omaha; but nothing has yet been done, since the other two competing roads have not signified a wish to enter into such an arrangement. The company has on hand now only one scheme for railroad extension, and that is the construction of a piece of road some 75 miles in length from Milwaukee to Lodi on the Madison Extension.

Chicago & Alton.

The bridge at Louisiana, across the Mississippi River, is completed. There remains only the completion of the track across it, and the placing of the machinery for turning the draw. Trains will be running across it by the beginning of the next year.

Stock Receipts.

The following is a statement of the stock received at the Union Stock Yards in November from the different roads:

	Cattle.	Hogs.	Sheep.	Horses.
Chicago & Northwestern.....	4,364	106,823	3,414	84
Milwaukee & St. Paul.....	881	2,160	2,386	3
Chicago, Burlington & Quincy.....	11,197	209,206	3,237	168
Chicago, R. I. & Pacific.....	4,248	110,139	3,326	31
Chicago & Alton.....	7,243	46,820	377	9
Illinois Central.....	4,905	109,924	2,505	65
Chicago, Danville & Vincennes.....	826	5,795	268	11
Pittsburgh, Cincinnati & St. Louis.....	389	3,559	.....	.....
Pittsburgh, Fort Wayne & Chicago.....	88	6,668	.....	.....
Lake Shore & Michigan Southern.....	2,151	10,991	1,704	61
Michigan Central.....	734	11,070	1,149	.....

Total receipts.....37,565 614,155 18,205 422

The shipments were as follows:

	Cattle.	Hogs.	Sheep.	Horses.
Michigan Central.....	4,073	56,606	960	66
Lake Shore & Michigan Southern.....	3,876	73,228	1,020	177
Pittsburgh, Fort Wayne & Chicago.....	8,889	21,734	1,669	16
Pittsburgh, Cincinnati & St. Louis.....	3,414	.....	.....	.....
Illinois Central.....	1,772	1,682	20	13
Chicago & Alton.....	726	282	.....	1
Chicago, R. I. & Pacific.....	1,273	.....	569	33
Chicago, Burlington & Quincy.....	1,533	.....	25	13
Chicago & Northwestern.....	259	262	21	61

Total shipments.....22,342 157,208 4,284 370

Receipts and Shipments.

The receipts of flour, grain, live stock and dressed hogs at Chicago for the week ending December 13 were about 7,776 car-loads against 6,041 car-loads for the corresponding week last year; and the shipments were 4,090 car-loads in 1873 against 2,133 in 1872. The increases were thus 28 per cent. in the receipts and 91 per cent. in shipments.

Explosion of a Car Heater.

A hot-water car heating apparatus in a Pullman car exploded while the car was standing in the Kansas Pacific depot at Denver, Col., December 10. One end of the car was demolished and the car generally was badly damaged. The accident is attributed to various causes, one account stating that ice in the pipes was the cause, while another says that "the escape valve was weakened," whatever that may mean.



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Editorial Announcements.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

VENTILATION AND WARMING.

At the late annual meeting of the American Health Association, a report was read by Mr. Carl Pfeiffer, C. E., Secretary of the American Institute of Architects, on "Sanitary Relations and Health Principles of Architecture," which we regret we cannot find room to publish in full, but can give only a condensation of the portion referring to ventilation and warming.

After discussing the importance of the science of hygiene and the relation which architecture has to that science, it is stated that every adult inhales 360 cubic feet of air, which is his chief food, in twenty-four hours; and the surface of the body needs to regulate its temperature very much more, and that the latter is so fixed and unchangeable that the blood of the inhabitants in equatorial regions has the same temperature as that of the Esquimaux near the North Pole. It is suggested that the same law which protects men from adulterated food and liquor (which it does not) should also protect them from breathing adulterated air. People get fond of adulterated food and drink, and exclude pure air from workshops in order to keep the warmth in. This is fallacious, because the fresh air "has the elements of heat in it," whereas the impure air has only "deathly iciness," and therefore in such workshops the men clamor for more fire. Sleeping in a cold and badly ventilated room is unhealthy, whereas persons may sleep out of doors with impunity when the thermometer is much lower, because the air outside is pure and full of life. A room under 45 degrees is a cold room for a sleeping apartment, and sleeping in an atmosphere in-doors lower than that is always hurtful, because at such a temperature the carbonic-acid gas condenses and settles in the lower part of the room, when it is breathed into the lungs.

Two factors are needed for the proper moving of air—a means of escape of foul air and an inlet of fresh, pure air; and the means of making these operate is heat. It is estimated that there is required for every person per hour in workshops from 2,000 to 3,500 cubic feet of fresh air every hour; in theatres, 1,400 to 2,400; and in meeting

halls, 1,000 to 2,000. Ranke, in his "Elements of Physiology," fixes the average quantity at sixty cubic metres, or 2,118 cubic feet, per hour for each person, as the necessary minimum amount. These quantities have been determined by mathematical calculation and innumerable experiments. Each gas-burner needs the introduction of from 4,000 to 5,000 cubic feet of fresh air per hour.

Air heated by metallic surfaces in direct contact with fire, without the intervention of either water or steam, acquires an aridity which causes it to absorb rapidly moisture from the skin and lungs of persons exposed to its influences, and the evaporation by its refrigerating effect contracts the blood vessels at the surface, while other parts not being exposed to this influence become, in consequence, surcharged with the fluids which are repelled from the extremities, and dizziness, coldness and languor in the extremities, feebleness of pulse and fainting fits are some of the symptoms produced, thus undermining the nervous organization. Professor Faraday says: "There is a risk of dryness in air from highly heated metallic surfaces, which leads me to prefer it warmed by steam or hot water; 65 degrees by the latter mode will not cause the air to lose any of its humidity, but by the former mode the air requires vapor of water to correct it." Heating with hot-air furnaces causes the absorption of the necessary humidity in the air of rooms, and thus induces the nervous disorders mentioned, while causing many other diseases. As the dew-point of the air in a room rises beyond its proper degree, the dryness of the atmosphere draws a quantum of moisture from one body altogether beyond what the body can well spare. The most healthy state of the atmosphere can be obtained only when the dew-point of the air is not less than 10 degrees nor more than 20 degrees Fahrenheit lower than the temperature of the room. When these limits are exceeded the air will be either too dry or too damp for healthy respiration. Moreover, this dryness of the air, which is the invariable result of hot-air furnaces, deprives the atmosphere, to an inordinate extent, of positive electricity, whereas the evaporation produced by steam-heating excites it, and thus relieves the unpleasant and injurious effect of close rooms. "So greatly does evaporation affect the electric condition of the air," says Mr. Hood, "that the diurnal variation in the quantity of electricity follows nearly the same course as the exhalation of moisture, and evaporation is considered to be the principal source of atmospheric electricity." Hot air, but especially from metallic surfaces, decomposes rapidly the floating particles of animal and vegetable matter contained in the air.

Air heated to a temperature above 212 to 250 degrees is unfit for breathing, and in hot-air furnaces it is often heated as high as 300 to 400 degrees.

Carbonic-acid intoxication is the most terrible agent of disease, insanity and immorality which we have to deal with, and prevails among all classes, and the most effective agent in spreading this evil is the hot-air furnace.

This, we believe, is a fair abstract of the report referred to, or at least of the portions of it which refer to the quality and effects of warmed air. Now, it will be observed that the writer makes the assertion, first, that it is very unhealthy to have the air in a room cold; and, second, that it is very unhealthy to have it warmed. Now, as we cannot have it both hot and cold at the same time, what he must mean is that it should be neither hot nor cold, but of a medium temperature. It must, therefore, from his own point of view, be necessary to warm this air by some means to get it to a moderate temperature. Now, any means employed for this purpose may be called a hot or warm-air furnace. We call attention to a criticism on another page of Mr. Pfeiffer's paper by a correspondent who advocates, or rather defends, the use of warm-air furnaces, and points out that most of the evils which Mr. Pfeiffer has pointed out are due to the mal-construction or bad management of that method of warming, and that the others he refers to do not exist. This correspondent has set forth his views so clearly and ably that we do not think it necessary to add anything to his views of the subject. We desire to point out and, if possible, to draw out some more accurate information regarding the effects of breathing warmed air. At a recent meeting of the master car builders, a speaker, in describing his method of ventilation, derided the use of warmed air by saying it "is better raw than cooked." Whether this was either witty or true, we will not undertake to decide; but that it is extremely vague is evident, if we inquire what was meant by "cooked air." If it simply means warm air, then all that we breathe in summer has been subjected to that culinary operation.

The real point at issue, and the one about which more knowledge is needed, is whether breathing artificially warmed air is unwholesome. If we sleep in a room which is thoroughly ventilated with cold air from out-of-doors, and under plenty of covering, and then sleep in a room equally well ventilated with warmed saturated air with little cover, so as to keep the body at the same temperature in the one case as in the other, most persons will say that they feel better after sleeping in the cold room. Now is this a fact or only a prejudice? And if a fact, what is

the reason for it, and why is artificially warmed air injurious, whereas that heated naturally in Summer is not? We are of course assuming that the artificially warmed air is pure, and saturated with the requisite degree of moisture, and that it is not heated to a temperature above what is required for comfort. It may be that air which is heated by metal plates in contact with the fire may undergo some chemical or electrical change; if so, what is that change and why does it not take place if the air is warmed from steam or hot water pipes?

Regarding the electrical condition of the air, we would like to know how the phenomena referred to by Mr. Pfeiffer were determined, and how we know that they have any and if any what effects upon health. At present all this seems to be mere surmise and not a well ascertained scientific fact. If it can be clearly shown that warmed air is unhealthy, then the sooner it is done the better, as the health and lives of many thousands of people are dependent upon the effects of breathing warmed air. As the case now stands, Mr. Pfeiffer's paper seems to us deficient in proof, or else inaccurate in his statement of the question at issue.

Exports and Imports of the United States.

The Bureau of Statistics has issued a report of the exports and imports of the United States for the fiscal year ending with June last, from which many important facts are deducible. The statements are made usually for each country or province separately, the aggregates being \$663,617,147 of imports and \$649,132,563 of exports.

We have consolidated the figures for certain great districts and calculated their proportions, the grand commercial divisions being North America north of the United States, North America south of the United States, the West Indies, South America, Great Britain and Ireland, the Continents of Europe, Asia, and Africa. Some outlying islands and Australasia we have not included:

District.	Imports.	Per ct.	Exports.	Per ct.
North America north of U. S.	\$43,808,000	6½	\$32,368,000	5
North America south of U. S.	18,411,000	2½	5,365,000	1
West Indies.....	91,369,000	14½	32,805,000	5
South America.....	67,246,000	10	26,442,000	4
Total of America.....	\$223,834,000	33½	\$96,980,000	15
Great Britain and Ireland....	\$237,797,000	36	\$363,509,000	56
Rest of Europe.....	123,636,000	19	140,505,000	21½
All Europe.....	\$361,433,000	65	\$504,014,000	77½
Asia.....	\$61,763,000	9½	\$15,925,000	1
Africa.....	4,493,000	0½	2,695,000	0½
Total.....	\$651,523,000	98½	\$619,614,000	94

The striking feature of this statement is the comparatively trifling business done with our immediate neighbors on this continent, which supplies but one-third of our imports, and is a market for little more than one-seventh of our exports. The little tracts of the West Indies afford two-fifths of these exports, and all the vast surface of South America less than one-third, more than half of that coming from the empire of Brazil and being chiefly coffee. We seem to be especially unfortunate in finding a market for our merchandise with these our next door neighbors, who sell to us largely but buy chiefly in Europe.

Quite as striking perhaps is the overwhelmingly predominant position of Great Britain in our commerce, it affording 36 per cent. of our imports and taking 56 per cent. of our exports, while with the rest of Europe it affords 55 per cent. of the imports and takes nearly four-fifths of the exports. This shows very clearly that the important transportation routes from the foreign commerce of this country are those leading most directly to Europe, and these same routes, within our own borders, are coincident with the prevailing currents of domestic traffic. That is, the part of the country nearest Europe is just that part of the country which is the greatest consumer of the products of the interior, and these products naturally pass through or near to this consuming section, whether they are on the way to a domestic or a foreign market.

Leaving Europe and America, the world has little to do with us, at least not directly. Asia and Africa together supply one-tenth of our imports and take less than a sixtieth of our exports, so in a commercial sense at least our merchants and producers may well say "Better fifty years of Europe than a cycle of Cathay."

The Decision of the Mexican Railroad Question.

We published a few days ago the statement made by telegraph from Matamoros that the Mexican government had concluded a contract with what is known as the "Mexican Company, Limited," for the construction of a system of railroads embracing a line from the City of Mexico to the Pacific and a connecting line to the United States frontier on the Rio Grande.

Mexican newspapers received since that date confirm this report and give information of the circumstances under which the contract was made.

It seems that the committee of Congress called the "Second Committee on Industry"—to which were referred the contract made with the International Company by the President and the rival proposals of the Union Contract Company of Philadelphia and the Mexican Company, after having vainly attempted to bring about a union of the three companies, reported as follows:

"The contract signed May 29, 1873, by the Minister of Public

RAILROAD EARNINGS FOR NOVEMBER, 1873.

NAME OF ROAD.	Mileage.		Increase.		Earnings.		Inc.	Dec.	Per cent.	Earnings per mile.	
	1873.	1872.	Miles.	Per Ct.	1873.	1872.				1873.	1872.
Atlantic & Great Western.....	571	579	32	6	\$391,260	\$471,774	.....	\$80,505	17	\$685	\$875
Atlantic & Pacific.....	328	328	.....	.....	88,853	109,590	.....	20,737	19	271	334
Burlington, Cedar Rapids & Minnesota.....	415	261	154	59	135,430	98,592	\$6,838	.....	7	254	378
Central Pacific.....	1,288	1,094	124	11%	1,296,812	1,293,957	2,855	.....	0%	1,065	1,183
Chicago & Northwestern.....	1,430	1,353	77	5%	1,039,306	1,067,386	.....	28,080	2%	727	789
Cleveland, Col., Cin. & Indianapolis.....	470	470	.....	.....	311,935	389,829	.....	77,894	20	664	829
Elric.....	971	971	.....	.....	1,570,023	1,745,729	.....	175,706	10-16	1,617	1,798
Illinois Central.....	1,109	1,109	.....	.....	622,433	696,475	.....	74,042	10%	561	628
Kansas Pacific.....	672	672	.....	.....	265,218	310,345	.....	45,127	14%	395	462
Lake Shore & Michigan Southern.....	1,174	1,096	78	6%	1,375,556	1,558,424	.....	182,868	13%	1,172	1,418
Milwaukee & St. Paul.....	1,236	1,121	115	10%	711,500	702,838	68,662	.....	9%	624	627
Missouri, Kansas & Texas.....	784	673	111	36%	369, 0	230,518	78,482	.....	34	381	402
Mobile & Ohio.....	517	517	.....	.....	236,634	344,335	.....	107,701	31%	458	666
Ohio & Mississippi.....	393	393	.....	.....	266,533	320,954	.....	54,421	17	678	817
Pacific, of Missouri.....	471	471	.....	.....	308,632	326,668	.....	18,036	5%	655	694
St. Louis, Alton & Terre Haute, Main Line.....	266	266	.....	.....	89,844	1,5,275	.....	35,431	28%	338	471
" Branches.....	71	71	.....	.....	42,080	52,893	.....	10,813	20%	593	745
St. Louis & Iron Mountain.....	310	288	52	20%	160,590	203,731	.....	42,931	21%	519	789
St. Louis, Kansas City & Northern.....	583	583	.....	.....	252,789	267,685	.....	34,896	13	399	459
St. Louis & Southeastern.....	349	349	.....	.....	98,248	98,715	.....	467	0%	282	285
Toledo, Peoria & Warsaw.....	237	237	.....	.....	81,194	103,110	.....	21,916	21%	343	438
Total.....	13,575	12,735	840	6%	\$9,664,389	10,518,123	\$157,137	1,011,571	.....	\$712	\$826
Total decrease.....	.....	.....	.....	.....	.....	.....	.....	854,434	8%	.....	.....

RAILROAD EARNINGS, ELEVEN MONTHS ENDING NOVEMBER 30.

Name of Road.	Mileage.		Increase.		Earnings.		Increase.		Decr'se.		Per Ct.		Earnings per Mile.	
	1873.	1872.	Miles.	Per Ct.	1873.	1872.	Inc.	Decr'se.	Per Ct.	1873.	1872.	Per Ct.	1873.	1872.
Atlantic & Great Western.....	548	539	9	1%	\$4,762,979	\$4,128,686	\$634,293	.....	15%	\$8,692	\$7,660	13%	\$132	\$127
Atlantic & Pacific.....	328	328	.....	.....	1,180,259	1,044,082	136,177	.....	13	3,598	3,183	13%	.....	.....
Burl., Cedar Rap. & Minn.....	349	261	88	33%	1,069,103	916,611	152,492	.....	16%	3,063	3,512	14%	.....	.....
Central Pacific.....	1,218	1,094	124	11%	12,906,402	11,886,969	1,019,433	.....	8%	10,596	10,466	1%	.....	.....
Chicago & Northwestern.....	1,407	1,343	64	4%	13,535,665	11,412,382	2,123,283	.....	18%	9,923	8,498	17%	.....	.....
Clev., Col., Cin. & Ind.....	470	470	.....	.....	4,329,921	4,108,881	221,040	.....	5%	9,213	9,434	2%	.....	.....
Elric.....	971	964	7	0%	18,0, 6,532	17,488,490	518,243	.....	3	18,544	18,141	2%	.....	.....
Illinois Central.....	1,109	1,119	.....	.....	7,438,118	7,328,687	107,431	.....	1%	6,705	6,608	1%	.....	.....
Kansas Pacific.....	672	672	.....	.....	3,303,682	3,418,025	.....	\$14,343	3%	4,916	5,086	.....	.....	.....
Lake Shore & Mich. South.....	1,149	1,048	101	9%	17,708,091	16,108,148	1,599,943	.....	9%	15,412	15,370	42	.....	.....
Milwaukee & St. Paul.....	1,196	1,093	103	9%	8,202,916	6,443,983	1,758,933	.....	27%	6,859	5,896	16%	.....	.....
Missouri, Kansas & Texas.....	706	519	187	36	3,136,509	1,606,376	1,440,133	.....	85	4,443	3,268	1,175	.....	.....
Mobile & Ohio.....	517	517	.....	.....	2,42, 698	2,591,947	.....	171,249	6%	4,682	5,018	.....	.....	.....
Ohio & Mississippi.....	393	393	.....	.....	3,344,933	3,242,859	102,074	.....	3%	8,111	8,252	269	.....	.....
Pacific of Missouri.....	471	428	43	10	3,365,788	3,375,347	90,441	.....	2%	7,150	7,453	.....	.....	.....
St. L., Alton & T.H., main line.....	266	266	.....	.....	1,258,608	1,304,453	.....	45,845	3%	4,732	4,903	.....	.....	.....
St. L., Kan. City & Ind., branches.....	71	71	.....	.....	547,227	467,504	79,723	.....	17	7,777	6,885	1,122	.....	.....
St. Louis & Iron Mountain.....	293	242	51	21	2,088,818	2,045,587	43,231	.....	2%	7,129	8,453	.....	.....	.....
St. L., Kan. City & Ind.....	583	583	.....	.....	2,537,669	2,614,985	.....	77,266	2%	4,353	4,485	.....	.....	.....
Total.....	12,717	11,896	821	6%	\$110,131,998	\$101,518,771	\$9,021,930	\$408,703	8%	\$8,660	\$8,533	\$127	.....	.....
Total increase.....	.....	.....	.....	.....	.....	.....	8,613,227	.....	.....	.....	.....	.....	.....	.....

Works and the International Company of Texas, for constructing and working a line of railroad and a telegraph from the City of Mexico to the Pacific Ocean and to the Bravo del Norte (Rio Grande) should not be approved.

"The propositions presented by the Mexican Limited Company and the Union Contract Company of Pennsylvania should be returned to the Executive, in order that, conformably to the law of December 10, 1872, he may agree upon a contract with one of the representatives of the said companies, with the same basis of powers as the International Company of Texas, or with any other petitioner.

"III. The Executive, a week after having received these propositions, shall return to Congress the contracts which he shall have agreed upon, conformably to the said law of December 10, 1872."

This report was adopted by Congress November 11 by a unanimous vote, and communicated to the Administration, which made the following announcement on receiving it:

"* * * And in order to fulfill, within the period indicated, the instructions contained in the preceding communication, the President orders as follows:

"I. The representatives of the companies of which the second resolution speaks, and of the other companies or individuals who desire to make proposals for the construction and working of a railroad from the city of Mexico to the Pacific Ocean and to the Rio Bravo del Norte, shall present them in writing to this ministry between this day and the 17th of November at noon, with the understanding that after that period no proposition will be received.

"II. After examining the propositions which shall be presented to this ministry, the government will choose that which it shall esteem the most suitable, in order to draw up the definite contract, which shall be concluded the 20th of November and referred to Congress.

"III. These arrangements shall be communicated officially to the representatives of the Mexican Limited Company, the Union Contract Company of Pennsylvania, and the International Railroad Company of Texas, and shall be inserted in the *Official Journal* of to-day for the information of the public.

"Mexico, November 12, 1873.—Balcarcel."

Concerning this method of dealing with the question, the *Trait d'Union* of November 15 said:

"Thus, then, the definite solution of the question is in the hands of the Executive, to whom Congress has given every facility for deciding it, and consequently the contract which he shall make with whatever party will be final, and necessarily approved by Congress. This mode of proceeding seems to us very wise and very practical, for there are so many moral and material considerations on this important matter that the task is more properly confided to the cool and profound study of the Executive than to the oratorical and perhaps passionate debates of a deliberative assembly."

The following is the conclusion of the administration as announced in the *Diario Oficial*:

"Having been authorized by the Congress of the Union to make arrangements with the different companies which have sought for a concession for constructing the railroad from Mexico to the Pacific, the government has examined the propositions which have been submitted to it for this purpose. The shortness of the time at its disposal for considering a subject so important to the country has been compensated by the particular attention which has been devoted to this business, in order to meet as satisfactorily as possible the confidence of the national representatives.

"In this examination the President and his council of ministers have laid aside all considerations of the nationality of the interested parties, and have had regard only to these capital considerations: Which enterprise offers most advantages to the country, and which is most certain to be realized? They have found that the 'Mexican Company, Limited,' offers these conditions, and they have decided in its favor.

"This is no reason why the others should be excluded; and among the additions urged by the government and accepted by the Mexican Company is the virtue of which, within a

certain time, the other two companies, or either one of them, may combine with the first named, provided that this should be conformable to their interests and to the realization of this great improvement for the country.

"Such are, stated briefly, the reasons which have determined the government to decide as above indicated in this matter."

The Mexican press has accepted this decision variously. So far as we have seen, most of the journals were extreme partisans of one or the other projects—or men seeking the contract, rather, for the three projects were almost identical in what they proposed to do and the terms on which the work was to be done—so they might be expected to approve or condemn according as they had favored or opposed the Mexican Company. From *El Revista Universal*, of November 22, we translate as follows:

"This action will approve to the entire world the confidence which these Mexicans, as well as the foreigners of all nationalities, have in the future of the republic and the administration of President Lerdo.

"This confidence will attract confidence from the whole world, so that the acquisition of the necessary capital to carry to completion this gigantic work may be considered as assured. Never since its independence have the merchants of Mexico, as history will show, given so eminent a proof of their confidence in the flattering future which Mexico offers.

"Both England and Germany, desiring to counterbalance the political power of the great Republic, can here co-operate with their capital and influence in this grand project, and we are persuaded that they will do so gladly."

And more nonsense of the same sort.

The *Cosmopolitan* of November 30, an English paper, which, we believe, favored the Plumb project, says:

"We think that Mexico, enjoying as she does at present the inestimable benefits of peace, and having at her disposition the capital sufficient with which to carry out the great work of railroad construction, is perfectly right in granting the concession to her own sons, instead of giving it to foreigners; not, however, that her government or people are in the least prejudiced against foreigners, but because, circumstances being equal, she naturally prefers her own sons to others."

It then has some remarks as to an absurd supposition that the failure to grant the concession to an American company would create ill-feeling in the United States! It adds:

"The Mexican capitalists who have obtained the concession for the building of the said roads are enterprising, intelligent and fully capable of carrying out what they propose to do; the whole nation is satisfied with the decision of the Government; work will ere long be commenced, and Mexico will soon enjoy the benefits to be derived from a good system of railroads, with the immense advantage of being indebted for those great benefits to her own enterprising sons."

The *Trait d'Union*, a French paper, and to our notion an exceedingly sensible one, is evidently disappointed and disgusted. It says:

"This conclusion has astonished public opinion greatly, and it appears not to have been very well satisfied with it. However honorable may be the names of the greater part of the fourteen merchants who have announced their intention to form the 'Mexican Company, Limited,' no one had taken their scheme seriously, and all were convinced that they were strangely mistaken. They have, however, modified their first proposals, and a superficial reading of them as they now are is sufficient to persuade one that their realization is practically impossible, and that they contain conditions concerning delays and capital which, under the most favorable circumstances, will never reach the practical stage." * * * Is it not strange to announce that Mr. Plumb, * * * after having labored for the realization of his projects for more than two years with as much perseverance as prudence and skill; after having avoided all controversy; after having addressed

himself directly to the Executive, acted with all frankness, ripely discussed and debated the question with the Minister of Public Works; finally, after having come to an agreement with the government, duly authorized so to do, by a contract exchanged in proper form and lacking only the ratification of Congress,—is it not strange to acknowledge that he sees himself supplanted between two days by fourteen merchants who have made their appearance after the signing of the contract, and who, profiting by his efforts and his labors, have started upon the path which he had opened, and are walking where he has cleared the way; undertaking engagements whose event is more than doubtful, and giving, whatever may be said, no assurance of realization?"

"We confess that this conclusion has painfully affected the interest we take in the prosperity of Mexico. For us, the railroad question is buried, or at least indefinitely postponed. The press has been excited by the decision which the Government has made, a most lively controversy has arisen between the partisans of the Union Contract Company and those of the Mexican Limited. The Texas International Company alone, faithful to its custom, has taken no part in it. Congress has not yet decided; it has not even opened the debate on this important matter. Will there be a contest over it? Will it be animated? We know not; but whatever may happen, with us there is no doubt that the mountain has brought forth a mouse."

The real point at issue was not so much the relative advantages of the different propositions, but the ability of the proposers to carry out their agreements, and this seems to have been recognized throughout by the Mexican press, which generally seemed to doubt the ability of any Mexican company to obtain the necessary capital. We learn that the leading spirits in the Mexican Company which has the contract are the bankers and others who are also the leading Mexicans interested in the Mexico & Vera Cruz line, now in operation and built chiefly with English capital. This railroad, however, has not made such returns on the investment as to be likely to lead its proprietors to add to their investments in Mexico, and of course no Mexicans can claim to be experts in placing railroad investments such as many Americans and Europeans are; at least they will not find it easy for capitalists to believe that they are before they have given evidence thereof. However, if the present company can get the support of those who are experts, other investors will doubtless join them. At the present time it seems quite doubtful whether any American company could raise the capital necessary, and we doubt whether the unsuccessful competitors have much to regret. One of them certainly is too deep in the mire on this side of the Rio Grande to be able to do much on the other side. It is very much better to fail in getting the contract than to fail in doing the work required for the first year by its terms.

We may add that we have a line from Mr. Edward Lee Plumb (who has shown singular diplomatic skill throughout this negotiation), in which he says: "Result quite satisfactory to me under existing circumstances."

Record of New Railroad Construction.

This number of the RAILROAD GAZETTE has information of the laying of track on new railroads as follows:

Washington City, Virginia Midland & Great Southern.—The Danville Extension has been extended southward 7 miles to a point 31 miles south of Lynchburg, Va. Montrose.—This 3-foot-gauge railroad has been extended northward 3 miles to a point 25 miles north of Tunkhannock and within 2 miles of Montrose. Wilmington & Reading.—Track has been laid on the Reading Extension from Birdsboro, Pa., westward 3 miles. Painesville & Youngstown.—This road of 3-foot gauge) has been extended from Chardon southward 10 miles to Burton, O. Green Bay & Minnesota.—Completed by an extension southward 2 miles to its junction with the La Crosse, Trempealeau & Prescott, 5 miles east of Winona. Rochester & State Line.—Extended from Scottville, N. Y., southward 4 miles. Utica, Ithaca & Elmira.—The Southern Division has been completed from its junction with the Ithaca & Athens at Van Ettenville, N. Y., west 20 miles to a junction with the Northern Central at Horseheads. Frankfort & Kokomo.—Three miles of track has been laid on this Indiana railroad.

This is a total of 52 miles of new railroad, making 3,506½ miles constructed in the United States in 1873.

THE NEW ISSUE OF ERIC STOCK said to have been determined upon in England in lieu of the sale of new bonds, and considered so important that it was telegraphed by cable to New York, published in all the newspapers and seriously commented on, turns out to have been simply a suggestion in an anonymous letter published in a railroad journal that such an issue might be preferable to an issue of bonds. The correspondent, however, seemed to be in earnest, for he wrote that "at \$35 American currency I shall be prepared on fair terms to guarantee the placing of any amount not accepted by the shareholders." He proposed to sell \$22,000,000 of shares, which would bring in \$7,700,000. This would be only a small part of what is needed, it is true, but if this expenditure proved productive it would be easy to raise more money either on stock or bonds. In all probability it will be the stockholders who will have to provide the new capital, whatever form it may take. The margin above the present interest charge is not sufficient to make additional bonds to a large amount attractive to the disinterested investor. But the shareholders are interested in seeing that the money is provided, for otherwise their shares will soon lose their value and probably be forfeited. For nothing is surer than that the Erie cannot remain as it is and yet keep up its present rate of net earnings. All of its competitors are being very much improved and prepared to do their work at less cost, the inevitable consequence of which will be lower average rates, which all competitors will have to grant, while unimproved lines will find very little margin over working expenses in such rates. The Erie shareholders should keep this well in mind. To save what they have already put in to the property it is absolutely necessary that some one should put more money into it.

Train Accidents in November.

Very early in the morning on the 1st, the second coach of a west-bound express train on the Ohio & Mississippi Railroad, was thrown from the track by a broken rail near Medora, Ind., after the engine, tender, a freight, a baggage, an express and a smoking car had passed safely, and rolled down an embankment 50 feet high, pulling three cars ahead of it from the rails. Four passengers were badly hurt.

On the 1st, near Kinnickinnick Bridge, on the Chicago Division of the Milwaukee and St. Paul Railway, one freight train ran into the rear of another from the Western Union Railway, badly wrecking the locomotive of the striking train and 14 Western Union cars, and breaking the fireman's leg. The Western Union train had broken in two and was standing on the track, apparently with no flag out.

On the 1st, about eight miles east of Jacksonville, Ill., on the Toledo, Wabash & Western Railway, an empty freight car with but one draft-iron, which was being hauled behind the caboose of a freight train, broke loose on an ascending grade and ran back into the engine of a following freight train, doing little damage.

About 1 o'clock in the morning on the 3d, an east-bound express train on the New York Central & Hudson River Railroad, ran into a switching engine, drawing some passenger cars westward, near Albany, badly breaking both locomotives and damaging some of the cars considerably.

On the night of the 3d, a north-bound train on the Illinois Central Railroad ran into a car which a high wind had blown down a siding into the main track, clearing the head-light, smoke-stack, etc., from the locomotive.

On the 4th, at Colfax, Ind., on the Indianapolis, Cincinnati & Lafayette Railroad, there was a butting collision between two locomotives.

On the evening of the 4th on the Vandalia Line, the steam dome blew out of a locomotive, as it was pulling a train out of Terre Haute, Ind., at the rate of about ten miles an hour.

Early in the morning on the 5th, about four miles east of Mountville, Ohio, on the Central Ohio Division, Baltimore & Ohio Railroad, a west-bound freight train ran over a cow near a bridge, by which the locomotive was thrown from the track and made to run against the bridge and knock it down. The engine and seven cars went down ten feet into the stream, and the engineman and fireman were badly hurt, the former dangerously.

On the night of the 5th at Minnesota City, Minn., on the Winona & St. Peter Railroad, there was a collision between an east-bound accommodation and a west-bound extra freight train, which latter, however, had begun to back after the accommodation came in sight. The engines were badly wrecked and several freight cars thrown off, while the track was torn up for several hundred feet. The extra had been ordered to wait at Minnesota City for the accommodation, but instead of backing down to take the siding, it started for the upper end, before reaching which the collision occurred.

On the morning of the 7th, in Jersey City, a work train on the New York Division of the Pennsylvania Railroad, as it was crossing a switch from the down to the up track, was run into by a Midland passenger train, which, it is reported, did not obey the signals shown.

On the 7th, a stock train was wrecked on the Burlington, Cedar Rapids & Minnesota Railway.

On the night of the 7th, just east of Lanesboro, Minn., on the Southern Minnesota Railroad, a bridge broke under a west-bound freight train and four cars were thrown down.

On the morning of the 8th, near Isinours, Minn., on the Southern Minnesota Railroad, a west-bound freight train ran into a large rock which had fallen upon the track, and the engine was thrown off.

On the morning of the 8th, two miles from Richfield Springs, N. Y., on the Utica, Chenango & Susquehanna Valley Division of the Delaware, Lackawanna & Western Railroad, a train struck a cow as it was crossing a road, throwing the locomotive truck from the track, in which condition it ran some distance on a high embankment.

On the 8th, eight miles east of Carbondale, Pa., on the Delaware & Hudson Canal Company's Railroad, a large hemlock tree was blown down directly upon the boiler of a locomotive and crushed it in, letting out the steam and water. The tree broke in two and the engine passed through.

On the evening of the 8th, near Limerick, Pa., on the Philadelphia & Reading Railroad, the bottom of a coal car fell out while two trains were passing each other and caused the wrecking of both trains, 35 coal cars being thrown from the track and broken or piled up.

On the evening of the 8th, two miles below Niagara Falls, on the Buffalo & Niagara Falls Branch of the New York Central & Hudson River Railroad, the locomotive, baggage car and one coach of a south-bound express train were thrown from the track by a broken rail, and the engine thrown upon its side in the ditch, injuring the engineman and fireman.

On the morning of the 9th, near Brantford, Canada, on the Buffalo & Lake Huron line of the Grand Trunk Railway, an east-bound express and a west-bound mixed train met in collision, killing the fireman of the express, injuring an engineman, brakeman and baggageman and five other persons, and wrecking four or five cars. It is reported that the accident was due to a blunder on the part of a telegraph operator.

On the 10th, near Cadosia, N. Y., on the New York & Oswego Midland Railroad, there was a butting collision between two trains, by which a fireman was fatally and an engineman severely injured and both locomotives wrecked. A telegraph operator is said to have been at fault.

On the morning of the 11th, just after a passenger train on the South & North Alabama Division of the Louisville, Nashville & Great Southern Railroad had left Clanton, Ala., a parallel rod broke, and this punched a hole in the boiler, struck the Master Mechanic of the road (who was running the engine), and did other mischief. The Master Mechanic, Mr. C. Beale, stuck to the engine, however, until he brought it to a halt.

On the 11th, at Coopersville, Mich., on the Detroit & Milwaukee Railroad, an express train ran into the head of a wood train, killing the fireman of the latter, and breaking considerably both locomotives.

On the night of the 11th, near Willow Springs, Ill., on the Chicago & Alton Railroad, a coal train ran into the roof of a barn which a gale had blown across the track, and the engine and one or two cars were thrown from the track. The engine was the same which drew the coal train in the terrible Lemont collision nearly at the same spot, and had been but a few days out of the shop.

On the night of the 11th, near Knowersville, N. Y., on the Albany & Susquehanna Railroad, one freight train ran into the rear of another, injuring the striking engine and several cars.

On the night of the 11th, near Westminster, Ga., on the Atlanta & Richmond Air Line Railroad, there was a butting collision between two trains, by which both locomotives were completely wrecked and several cars injured.

On the morning of the 12th, near the new shops of the Chicago & Northwestern Railway, just west of Chicago, a train carrying workmen ran off at a switch, wrecking the tender and tearing up the track. The road was blocked some hours.

On the morning of the 12th, at Ayer, Mass., on the Stony Brook Branch of the Boston, Lowell & Nashua Railroad, the engine of a freight train having been cut off and switched for the yard, the cars following were so close that they could not be switched for the main track, and they drove the engine

into the engine-house and into another engine, which latter was driven through the wall of the building.

On the morning of the 12th, as a passenger train was leaving the Shenandoah depot of the Philadelphia & Reading Railroad, the engine was thrown from the track by a misplaced switch.

On the morning of the 12th, near Brownsville, Tenn., on the Memphis Branch of the Louisville, Nashville & Great Southern Railroad, a south-bound accommodation train had the locomotive, tender, baggage car and second-class car wrecked by running over a bar of iron which had been tied to the track. A passenger was seriously injured. The Westinghouse brake is reported to have prevented a worse wreck.

On the afternoon of the 12th, at Elizabeth, N. J., on the New York Division of the Pennsylvania Railroad, a locomotive which had been switched by mistake upon a turntable ran over the turntable, and striking the switch-tender's house, a two-story structure, moved it about 15 feet. The engine and several cars were stalled in the mud and required nine hours' work to get back. It was the fault of the switch-tender, who took it for granted that a locomotive hauling a freight train was a locomotive which usually went upon the turntable at that time of day.

On the evening of the 12th, near Hutchins, Tex., on the Houston & Texas Central Railroad, a south-bound passenger train ran off the track, mortally wounding two and less seriously another passenger.

On the morning of the 13th, just out of St. Paul, Minn., on the St. Paul & Pacific Railroad, a north-bound freight train ran into the rear of another which had suddenly stuck fast on a steep grade, breaking up three cars and the colliding engine, and blocking the road three hours.

On the 13th, in Pottsville, Pa., on the People's Railroad, a locomotive ran off the track shortly after leaving the depot.

On the 13th, in Hannibal, Mo., a switching engine on the Hannibal & St. Joseph Railroad, ran into a Missouri, Kansas & Texas locomotive at the intersection of the roads, and the latter was thrown from the track.

On the night of the 13th, about two miles south of Grand Junction, Mich., on the Chicago & Michigan Lake Shore Railroad, a front wheel broke under the baggage car of a south-bound passenger train, throwing off this car and the coach behind it, and placing them across the track badly broken.

Early on the morning of the 14th, as a locomotive was passing over the trestle work of the Harborside Cove Branch of the New York Division of the Pennsylvania Railroad in Jersey City, the connecting-rod broke. The engineman was struck by a piece of the rod, thrown under the engine and killed.

On the 14th, near Dallas, Texas, on the Texas & Pacific Railroad, the caboose of an east-bound freight train jumped the track and fell over, killing a man who was riding in it.

On the morning of the 15th, as a special train, despatched from Burlington to carry a surgeon to care for a child whose legs had been run over by an engine some fifty miles west, was running at the rate of 45 miles an hour on the Burlington & Missouri River Railroad, it ran off the track about two miles west of Rome, Iowa, where track-men had taken out a rail and neglected to put out flags.

On the morning of the 15th, west of Geddes, N. Y., on the Auburn Division of the New York Central & Hudson River Railroad, there was a collision between an east-bound coal train drawn by two locomotives and a west-bound freight. The engines and several cars were thrown from the track and the track blocked all day.

About 11 o'clock on the morning of the 15th, as a freight train on the Pennsylvania Railroad was crossing the bridge over the Schuylkill, above Gray's Ferry, a car jumped the track and ran against one of the iron posts of the bridge, breaking a portion of the bridge and throwing three cars loaded with stone into the river.

On the 15th, below Alton, Ill., on the track of the Indianapolis & St. Louis Railroad, a south-bound stock train of the Rockford, Rock Island & St. Louis Railroad was thrown from the track by a misplaced switch, wrecking several cars and killing a number of hogs.

On the evening of the 16th, near the Tye River bridge, Va., on the Washington City, Virginia Midland & Great Southern Railroad, a wheel broke under a car of a north-bound stock train, and nearly all the cars jumped the track and ran on the ties till they stopped on the bridge. The road was blocked twelve hours.

On the morning of the 17th, a west-bound express train on the Indianapolis, Bloomington & Western Railway was thrown from the track while running through the yard adjoining Indianapolis.

On the morning of the 17th, near Western avenue, Chicago, on the Galena Division of the Chicago & Northwestern Railway, an engine without train ran into the rear of a west-bound passenger train which had halted to let off a passenger, disabling all the cars.

On the morning of the 18th, the locomotive of a south-bound passenger train on the New Jersey Southern Railroad was thrown from the track near Seabright, N. J., at a point where the road-bed had been washed out by a high tide and heavy storm. The train was running slowly and little damage was done.

On the afternoon of the 18th, near Patchogue, L. I., on the South-Side Railroad of Long Island, just after a mail train had started westward the rear car jumped the track at a switch, and was turned over and dragged a considerable distance.

On the night of the 18th, in Burlington, Iowa, on the Burlington & Missouri River Railroad, part of a west-bound passenger train was thrown from the track by the shaking open of a switch which had been left unlocked.

On the night of the 18th, a train of the Toledo, Wabash & Western Railway got off the track between Hamilton, Ill., and Keokuk, Iowa, causing some delay.

On the morning of the 19th, half a mile east of Monroe, N. Y., on the Erie Railway, a coal dump of an extra west-bound freight train jumped the track and threw off twelve others, eight being broken to pieces and the others overturned.

On the night of the 19th, near Greensburg, Ind., on the Indianapolis, Cincinnati & Lafayette Railroad, the engine and baggage car of a north-bound express train were thrown from the track and the engine overturned, blocking the road seven hours. The accident happened at a cattle-guard, and is supposed to have been caused by the spreading of the rails.

On the morning of the 20th, near Cotton Grove, Ind., on the Cincinnati, Hamilton & Indianapolis Railroad, the engine and seven cars of a freight train were derailed.

On the morning of the 20th, at Swanton Junction, Vt., on the Vermont Central Railroad, a south-bound express train was thrown from the track by the breaking of a switch-rod, and the baggageman was slightly hurt.

On the afternoon of the 20th, in the city of Indianapolis, a locomotive of the Bee line ran into the rear of a train of the Indianapolis, Cincinnati & Lafayette Railroad, breaking the head-light and rear car.

On the night of the 20th, near Evansville, Wis., on the Madison Division of the Chicago & Northwestern Railway, a freight train ran off the track, ditching two cars and blocking the road several hours.

On the evening of the 21st, four miles south of Corsicana, Texas, on the Houston & Texas Central Railroad, a car of a south-bound freight train jumped the track just before reaching a bridge 80 feet long and 24 feet high, and on striking the latter nine cars went over, demolishing the bridge and breaking the cars badly.

On the evening of the 21st, at Perry, Tex., on the Waco Branch of the Houston & Texas Central Railroad, a north-

bound passenger train ran off the track, and one coach was broken up and the conductor and a passenger injured.

On the night of the 21st, on the Kentucky Central Railroad, a north-bound extra freight ran into the rear of the regular freight, demolishing the caboose of the latter and killing a brakeman.

On the night of the 23d, near McAlmont, seven miles north of Little Rock, on the Cairo & Fulton Railroad, a north-bound passenger train ran off the track where the road-bed had been damaged by recent rains, and the smoking car landed bottom up, the first coach on its side, the baggage and sleeping cars across the track.

On the morning of the 24th, at Norwood, Ohio, on the Marietta & Cincinnati Railroad, a locomotive went off the track and fell down an embankment, killing the fireman.

On the 24th, near Millville, Ill., on the Quincy, Alton & St. Louis Railroad, a south-bound freight train ran upon a piece of rail which had been placed in a flange-way at a road crossing. One end of this rail flew up and broke the feed-pipe, tore off the ash pan and knocked out the grates. The road was behind in paying its men, and this is supposed to have been the reason why this and several other attempts to wreck its trains were made.

On the 24th, in Indianapolis, a locomotive of the Indianapolis & Vincennes Railroad ran into a freight train on the track of the Pittsburgh, Cincinnati & St. Louis Railway, disabling the engine and one box car.

On the evening of the 24th, at Buckner's, four miles east of Belleville, Ill., on the St. Louis & Southeastern Railway, there was a collision between east-bound and west-bound freight trains, by which both engines were badly broken.

About the 24th, the engine and several cars of a west-bound train on the Toledo, Wabash & Western Railway ran off the track two miles west of Elvaston, Ill., injuring one person.

On the evening of the 26th, a north-bound train on the Utica Division of the New York & Oswego Midland Railroad ran off the track at Clinton, N. Y.

On the morning of the 27th, near Hazleton, Pa., on the Delaware, Lackawanna & Western Railroad, a passenger train ran off the track and came in contact with a freight car, killing one man and injuring another.

On the morning of the 27th, near Montgomery, Ala., on the Mobile & Montgomery Railroad, a north-bound passenger train ran over a split rail, the rail or part of it tore through the floor of a coach, much in the manner of the "snake-heads" of the old-fashioned strap-rail, dished all the cars and turned some of them over, and injured three passengers considerably.

On the morning of the 27th, as a south-bound express train of the Eastern Railroad, which was three hours late, was passing through a long bridge in Biddeford, Me., it came in collision with a north-bound freight, by which both engines were somewhat damaged.

On the afternoon of the 27th, just west of Albany on the New York Central & Hudson River Railroad, the boiler of a locomotive exploded, severely wounding two persons, and immediately after the explosion the engine ran into another locomotive and damaged it badly.

On the afternoon of the 27th, at Waseca, Minn., on the Winona & St. Peter Railroad, a passenger train ran into the rear of a freight train which was standing on the main track when the passenger was due. The passenger locomotive and four box cars were badly wrecked.

On the evening of the 27th, as a south-bound passenger train on the Connecticut River Railroad was coming out of a bridge in Springfield, Mass., the engine struck a piece of timber and was thrown down the bank 20 feet, landing bottom up, with the tender turned over on it, while the front end of the smoking car overhung the ruins. The engineman was dangerously and the fireman slightly injured.

On the evening of the 28th, in Burlington, Iowa, the locomotive of a passenger train was thrown from the track by a misplaced switch.

On the morning of the 29th a west-bound passenger train on the Central Pacific Railroad ran through an open switch and into some freight cars standing on a side track at Palisade, Nev. The engine and mail car were thrown from the track, and several freight cars were wrecked.

On the morning of the 29th, near Hanover Junction, Va., on the Chesapeake & Ohio Railroad, a wheel broke under a coach of a passenger train and the car was badly damaged.

On the evening of the 29th, near Morristown, N. J., on the Morris & Essex Division of the Delaware, Lackawanna & Western Railroad, a train was thrown from the track by a misplaced switch, and the engine and two cars considerably damaged.

On the night of the 29th, 2 1/2 miles east of Walton, N. Y., on the New York & Oswego Midland Railroad, two cars of a passenger train were upset into the ditch by the spreading of the rails. A brakeman was killed and the conductor and another brakeman injured.

On the 30th, between Coxsack and Stuyvesant, on the New York Central & Hudson River Railroad, a stay-bolt in the crown-sheet of a locomotive drawing a train blew out, throwing fire into the cab, by which the engineman had his hand nearly burned off.

This is a total for the month of November of 76 train accidents, causing the death of 11 and the injuring of 50 other persons. These accidents may be classified as to their nature or causes as follows:

DERAILMENTS.	
Unexplained.....	17
Misplaced switch.....	5
Accidental obstruction.....	4
Broken rail.....	4
Spreading of rails.....	2
Washing out of road-bed.....	2
Broken wheel.....	2
Cattle on track.....	2
Malicious obstruction.....	1
Rail removed for repairs.....	1
Unlocked switch.....	1
Breaking of switch-rod.....	1
Breaking of bridge.....	1—42
COLLISIONS.	
Rear collisions.....	11
Butting collisions.....	10
Crossing collisions.....	2
Unexplained.....	2—25
EXPLOSIONS.	
Of boiler barrel.....	1
Of steam drum.....	1
Of stay-bolt.....	1—3
Breaking of parallel or connecting rod.....	2
Breaking of locomotive by malicious obstruction.....	1
Breaking of car wheel and car.....	1
Tree blown upon engine and breaking it.....	1
Unknown.....	1—6
	76

Of the "accidental obstructions," one was a fallen rock, one a dump falling under a coal car, and one a roof of a barn blown across the track.

Of the rear collisions, two were with stalled trains, one with the end of a car blown from a siding onto the main track, and two were caused by a misplaced switch, one of the latter being a failure to make a flying switch.

Nine of the accidents are traceable to defects or failures of permanent way, and ten to defects or failures of rolling stock.

Ten of the 76 accidents caused death, and 12 others injury to

persons, so that 54, or more than two-thirds, caused neither death nor wounds.

For the twelve months ending with November on record stands as follows:

	No. of Accidents.	Killed.	Injured.
December, 1872	112	42	133
January, 1873	178	40	199
February	133	25	126
March	112	18	92
April	101	23	88
May	79	10	113
June	90	12	104
July	90	18	80
August	150	63	155
September	106	29	75
October	88	11	47
November	76	11	50
Totals	1,315	302	1,262

Last year we reported for November 103 accidents, by which 37 persons were killed and 114 injured. Thus this year there were one-fourth fewer accidents, two-thirds less killed and one-half less wounded. The number of accidents is the smallest of the year.

The average number of accidents per day in each month of 1873, according to our reports, has been as follows:

January	5.74	May	2.55	September	3.53
February	4.75	June	3.6	October	2.84
March	3.61	July	2.90	November	2.53
April	3.37	August	4.81		

The average for the eleven months has been 3.60 per day.

There has been some snow in a few parts of the country and some severe weather, but not enough to bring forward as yet the usual winter harvest of accidents.

Transportation in Congress.

In the Senate, on the 11th:

Mr. Windom, of Minnesota, offered a resolution that the Select Committee on Transportation Routes to the Seaboard have authority to hold sessions during the holiday recess, at such places as they may select, and that they have power to send for persons and papers. Passed.

Mr. Ramsey, of Minnesota, introduced a bill extending the time for the completion of the St. Paul & Pacific Railroad. Referred to the Committee on Public Lands.

In the House, on the 11th:

Mr. Orth, of Indiana, offered a resolution providing for a survey to ascertain the practicability of a ship canal connecting Lake Michigan with the Wabash River. Adopted.

In the House, on the 12th:

Mr. Holman, of Indiana, offered a resolution directing the Secretary of War to report whether any payments have been made by his department to the Illinois Central Railroad Company for the transportation of troops or supplies of the United States since January 1, 1866, and requiring like information as to other roads in aid of which land grants had been made. Adopted.

In the House, on the 15th, bills were introduced:

By Mr. Cox, of New York.—To protect shipping on the Atlantic from the destructive eastern gales; also, for the better preservation of harbors, channels and lakes.

By Mr. Perry, of New York.—To make Albany a port of entry and delivery.

By Mr. Atkins, of Tennessee.—For uniform rates on railroads.

By Mr. Fort, of Illinois.—For a survey and report of the cost of a double-track railroad from Omaha to New York City, for the transportation of heavy freight.

By Mr. Loughridge, of Iowa.—To regulate commerce between the States and to regulate reasonable rates of railroad charges for freight.

By Mr. Averill, of Minnesota.—For the further extension of the time of the St. Paul & Pacific Railroad to complete its line.

General Railroad News.

ANNUAL REPORTS.

Boston & Maine.

This company owns a line from Boston northeast to Portland, Me., 118½ miles; a branch from Medford Junction to Medford, 2 miles; and a branch from Rollinsford, N. H., to Great Falls, 2½ miles. It leases and works the Newburyport Railroad, 26½ miles; the Danvers Railroad, 9½ miles; the West Amesbury Branch, 4½ miles; and the Dover & Winnipisogee Railroad from Dover, N. H., to Alton Bay, 29 miles, making a total length of line worked of 192½ miles. The company also owns the Methuen Branch, from Lawrence, Mass., to the New Hampshire State line, which is leased to the Manchester & Lawrence Company and worked by that company. The extension from South Berwick Junction to Portland, 44 miles, was opened for freight traffic February 15, and for passenger business a month later. The West Amesbury Branch was opened for business January 9. The average mileage for the year was thus 174½ miles.

The earnings and expenses for the year ending September 30 were:

	1873.	1872.
Passengers	\$1,302,190 55	\$1,092,600 49
Freight	820,512 44	813,204 26
Rents	42,021 16	43,423 35
Mails	14,551 25	14,825 83
Expresses	42,407 93	40,917 90
Interest and premium	78,409 35	41,470 36
Total earnings	\$2,300,093 68	\$2,046,142 19
Repairs of road and buildings	345,706 49	361,436 77
Repairs of equipment	177,115 53	216,822 80
Fuel and water	268,059 64	215,765 69
Transportation expenses	420,780 18	361,401 67
General expenses	37,364 20	39,924 19
Miscellaneous expenses	218,394 85	194,153 95
Danvers Railroad rent	7,500 00	7,500 00
Renewal of rails	138,868 13	137,324 77
Telegraph	5,678 93	4,793 27
Total expenses	\$1,619,527 95	\$1,538,823 11
Net earnings	680,565 73	507,319 08
Interest, and bonded interest	108,297 05	
Balance	\$572,268 68	

The gross earnings were \$13,181, and the net earnings \$3,900 per mile, and the operating expenses were 70.41 per cent. of earnings. The balance was over 8 per cent. on the stock.

The train mileage for the year was 1,458,963 miles, against 1,215,996 miles in 1872.

The business of the year as compared with the previous year was as follows:

	1873.	1872.
Passengers carried	5,008,074	4,136,469
" " one mile	61,760,456	57,247,475
Tons of freight carried	512,004	520,722
" " one mile	20,927,664	20,769,207

Showing a gain of 7½ per cent. in passengers and 0½ per cent. in tons of freight carried one mile.

The equipment now consists of 69 locomotives, 120 passenger and 1,400 freight cars. Six locomotives, 18 passenger, and 177 freight cars and one snow-plow were built or bought during the year.

The cost of the Portland Extension up to the close of the year was \$3,941,322.76, or \$89,575 per mile. Of this amount \$1,106,228.42 was expended for land. During the year, \$13,406.95 was expended on the re-location of the main line between North Andover and Bradford, making the whole expenditure for this improvement \$205,504.64. The sum of \$61,412.53 has been expended on the wharves on Mystic River at Somerville.

The capital stock of the company is \$7,000,000, of which \$2,000,000 was issued on account of the Portland Extension. An issue of bonds has been authorized of which \$1,227,500 were sold during the year, constituting the whole funded debt of the company. There are notes payable amounting to \$1,629,699.08. The general reserve account, or undivided earnings, amounted March 31, to \$1,018,227.70. Of this \$667,342.48 is invested in bonds and stock of leased roads, the remainder in equipment and improvements of the road. One dividend of 4 per cent. was paid during the year and another, also of 4 per cent., has been declared since its close. The capital account is at the rate of \$77,922 per mile.

An agreement has been made for the lease of the Lowell & Andover road. It is proposed to extend the West Amesbury Branch four miles further to Amesbury Mills.

A detailed account is given of the lease of Smith's Wharf at Portland and the making of connection between the track on the wharf and the main line. The wharf cost \$200,000 and brings in an annual rental of a little more than 5 per cent., in addition to its use by the road.

The report says: "We have not yet obtained that connection at Portland with the Maine Central road, for either passengers or freight, which we believe the public are entitled to by the charter of that road and the laws of the State of Maine. The public are compelled, by the policy adopted by the Maine Central Railroad managers, to transship at Portland, at great expense and inconvenience, all freight, and all passengers and their baggage."

"We know well that this opposition by the Maine Central road to the opening of a through line from Bangor to Boston over the Boston & Maine Railroad is a much greater hardship to the people of the State of Maine than to the stockholders of this road. We are content to await the final action of the courts and the people, who will most surely apply a remedy that will hereafter set at defiance the iron monopoly to which they are now subjected."

"We have now completed our road to Maple street, the point designed for the location of our permanent passenger station in Portland."

"Near this point we cross Commercial street to our wharf. By means of this crossing, we form an indirect connection with the Grand Trunk road for freight purposes. We hope soon to make the direct connection with this great and important line of road to the West, and thus secure the same facilities for passengers which are possessed by other roads."

PERSONAL.

—Mr. James H. Howe, up to the 1st inst. General Manager of the Chicago & Northwestern Railway, has been appointed and confirmed as District Judge of the United States Court for the Eastern District of Wisconsin. Mr. Howe was colonel of a Wisconsin cavalry regiment during the war, afterwards was a judge of one of the State courts; for some time was Attorney of the Chicago & Northwestern Company, and was made General Manager on the retirement of George L. Dunlap about three years ago.

—Mr. James Lucas, of Baltimore, died in that city December 8, at the age of 79. Mr. Lucas was formerly a director of the Baltimore & Ohio Railroad Company, having held that position for ten years.

—Mr. E. M. Moore, Assistant Superintendent of the Rome, Watertown & Ogdensburg Railroad, was recently presented with a valuable gold watch and chain by a number of his friends.

—Mr. J. A. Grier, General Ticket Agent of the Davenport & St. Paul and Peoria & Rock Island roads, has resigned his position on the Peoria & Rock Island, still retaining that on the Davenport & St. Paul.

—Hon. James H. Hoyt, for many years Superintendent of the New York & New Haven Railroad, died at his residence in Stamford, Conn., on Sunday, the 14th inst. Mr. Hoyt had been connected with the road, we believe, from its first opening, and resigned his position as Superintendent a little over a year ago, when the road was consolidated with the Hartford & New Haven. Since that time he has lived in retirement. He was in the 65th year of his age.

OLD AND NEW ROADS.

Vermont & Canada.

At St. Albans, Vt., December 13, the Chancellor gave his decision in the case of the Central Vermont Company against the Vermont & Canada. An injunction was granted, according to the prayer of the petition, restraining the Vermont & Canada Company from holding, or attempting to hold by trustee process, in Massachusetts, any funds belonging to the Central Vermont as receivers of the Court of Chancery. The opinion is based upon the general grounds that this company is under the jurisdiction of the Vermont Court of Chancery, that the funds arising from the roads are equally so, and that to lock up those funds by litigations outside of this Court will be ruinous to the business of the roads. The Chancellor said that had the Vermont & Canada Railroad Company any reason for supposing, or any proof, that any of the money in the hands of the parties trusted belonged to the old trustees of the first mortgage bonds, it would have been competent and proper for them to have shown it at the hearing; but in the absence of any such pretence it was difficult for the Court to see, from the evidence adduced, any reason for the proceedings which had been instituted, except a desire to embarrass the receivers and tie up the funds of the trust, and that the Court would do all in its power, not only to protect its officers from this attack, but to prevent similar ones in the future. This decision, as was expected, indicates that the Vermont & Canada Company can obtain no relief through the Vermont Court of Chancery. An appeal is to be taken to the Supreme Court.

Paw-Paw.

The bridge over the east branch of Paw-Paw River on this road was carried away by a freshet, December 11. Travel on the road will be suspended some two weeks.

Connecticut Western.

It is proposed to build a branch from Canaan, Conn., northward to Mill River Village, Mass., a distance of some seven miles. A short branch or side track is also to be built to the quarries of the Canaan Marble Company in East Canaan.

Mineral Point.

It is reported that the rolling stock has been withdrawn from the branch line from Calamine, Wis., west to Platteville, and that the branch will not be worked for the present.

Louisville, New Albany & St. Louis.

An adjourned meeting of the stockholders was held in New Albany, Ind., December 10. The committee appointed at the pre-

vious meeting to visit Louisville creditors reported that they had proposed giving creditors the first mortgage bonds of the company in sufficient amount to satisfy the claims, at an agreed price. A motion was adopted recommending the whole matter to the directors, with instructions to make the best terms possible. Some of the stockholders were in favor of allowing the road to be sold. It is thought probable that the bankruptcy proceedings will go on and the road be sold.

Oil Producers'.

The President of this company having refused to call a meeting of the stockholders, a mandamus was obtained from the Crawford County Circuit Court. The President, in obedience to the writ, issued a call for a meeting to be held in Titusville, Pa., December 13, to take steps to have the company dissolved. The company was organized to build the Pennsylvania section of the line from Titusville to Buffalo, the New York end of which is now being constructed by the Buffalo & Jamestown Company.

Galveston, Harrisburg & San Antonio.

Construction trains are running 25 miles west of Columbus, Tex., and regular trains have commenced to run to Schulenburg, 24 miles west of Columbus and 108 miles from Harrisburg. Some 30 miles of iron is on hand or on the way. The President, Mr. Petree, recently made contracts in England for 5,000 tons of rails, or nearly enough to complete the road to San Antonio.

Richmond & Danville.

At the annual meeting in Richmond, Va., December 10, the stockholders voted to approve and ratify the action of the directors in ordering an issue of \$1,500,000 of bonds and executing a trust deed to secure the same.

National.

It is again reported that some well-known capitalists have taken an interest in this company and that arrangements have been made to resume work on the road. The affairs of the company are now being audited and put in proper condition.

Connecticut Valley.

This company recently brought suit against the town of Old Saybrook, Conn., to compel the payment of a subscription of \$24,200 to the stock of the company. The subscription was made payable on the completion of the road, but no portion of it has ever been paid. Recently, however, the town voted to pay the subscription and interest, and the suit will be abandoned.

Railroad Taxation in New Jersey.

The Delaware, Lackawanna & Western and New Jersey Central companies have protested against the high valuation at which their properties in Jersey City have been assessed. The other companies have taken no action. It is reported that a strong effort will be made to secure the repeal of the law for the taxation of railroad property at the coming session of the Legislature.

Utica, Ithaca & Elmira.

The Utica (N. Y.) Herald, of December 15, says: "Trains will commence running on the Elmira end of the Utica, Ithaca & Elmira Railroad this morning." This section extends from Van Ettenville on the Ithaca & Athens road, 21 miles south of Ithaca westward to Horseheads, on the Northern Central, six miles north of Elmira, and is about 20 miles long.

Harlem Extension.

The Troy (N. Y.) Times of recent date says: "The leasing of the Harlem Extension Railroad by the Central Vermont is simply a temporary agreement. The Central Vermont folks agree to operate the Harlem Extension as an experiment. If they can do better than the original managers, they will keep it; if not it will be handed back to Park."

The same paper also states that the Central Vermont Company has not succeeded in making arrangements to run through trains to New York over the Harlem Railroad. In this case the passenger travel will continue to pass to the Benescler & Saratoga at Rutland.

Grand Trunk.

This company advertises that it is prepared to enter into engagements with the owners of steamships for the transportation of freight from Portland or Boston to Liverpool and Glasgow. The Grand Trunk Company will agree to furnish cargo for two large steamers a week, either at Portland or Boston, upon through bills of lading from all places in Canada and the Western States for Liverpool or Glasgow, upon divisions of the through rates to be agreed upon. Communications are to be addressed to C. J. Brydges, Managing Director at Montreal.

Ware River.

Trains commenced running over the new extension to Winchendon, December 16. For the present there is one through train daily each way from Palmer to Winchendon, with two additional local trains from Palmer to Barre Plains and one from Palmer to Gilbertville. All the trains are run in connection with the trains on the Boston & Albany.

Illinois River Improvement.

The Illinois State Canal Commissioners met at Lockport, Ill., and opened the bids for the construction of the lock and dam on the Illinois River at Copperas Creek. Twenty two bids were received, the highest being for \$469,094, and the lowest \$267,219. The latter bid was by Mr. Willard Johnson, the contractor who built the lock and dam at Henry, Ill.

Lake Shore & Michigan Southern.

It is stated by some of the New York papers that the directors of this company have resolved to put a second mortgage of \$25,000,000 on the road. It is proposed to use \$4,000,000 of the bonds for the purpose of funding the floating debt and to make provision for the exchange of the \$6,000,000 of debenture bonds outstanding. The remainder of the bonds will be issued as required for the completion of the second track and other improvements on the road.

Chicago & Illinois River.

The grading is substantially completed from Joliet, Ill., to Wilmington. A large force is to be kept at work beyond Wilmington. Arrangements have been made to run trains over the Chicago, Rock Island & Pacific track from Joliet to Chicago.

Frankfort & Kokomo.

A correspondent informs us that 16 miles of this Indiana road is graded and three miles of track laid. Work on the grading is temporarily suspended, but the track-laying is slowly progressing. The town of Kokomo recently subscribed \$8,000 in aid of the road, which makes up the amount of \$102,000 required to grade the road. The road is 25½ miles long, from Kokomo, Ind., southwest to Frankfort. The contractors, Wells & Gardner, agreed to do the grading, tying and bridging for \$4,000 per mile.

Missouri, Kansas & Texas.

Considerable excitement was caused in Wall street recently by a report that an issue of duplicate numbers of the first mortgage bonds of this company to a large amount had been discovered. This was subsequently explained by the fact that some time since an issue of 1,250 bonds of \$1,000 each was ordered on the Fort Smith Branch, these bonds being numbered

from 16,501 to 17,750. These were not sold, but pled as collateral. Subsequently it was resolved to postpone the building of this branch, and the company having purchased the Hannibal & Central Missouri road new bonds were issued for the purchase of this line numbered also from 16,501 to 17,750. The bonds issued on the Fort Smith line were ordered to be canceled. It was found, however, that 244 of these bonds had been sold by the contractors. Steps are being now taken to retire these bonds.

Milwaukee & St. Paul.

The through passenger trains from Chicago and Milwaukee to St. Paul now run across the winter bridge near La Crosse and over the River Division from La Crosse to Winona. Two trains are run daily over the La Crosse Division to La Crosse, one of them going through to St. Paul.

Grand River Valley.

The United States Circuit Court at Detroit has rendered a judgment against the city of Jackson, Mich., for the amount of the principal and interest of the bonds issued by the city in aid of the Grand River Valley road. The amount of the bonds is \$50,000, and three years' interest is due.

Poughkeepsie Bridge.

The corner stone of the eastern abutment was to be laid December 17. Preparations have been made for a general celebration of the event in Poughkeepsie.

Detroit & Milwaukee.

The first mortgage bondholders have appointed a committee and authorized it to take steps necessary to protect their interests, even to the extent of foreclosure. The coupons due November 15 were not paid. The yearly interest on the first mortgages amount to a little more than \$230,000, and the net earnings last year were more than \$500,000, but indispensable improvements of the road have been paid for out of net earnings. The Great Western of Canada holds substantially all the stock, but the only advantage from it hitherto has been the securing of the through traffic from it. It is said that an offer has been made to pay a yearly rental of \$500,000 for the road for 21 years. The Great Western Company voted against a proposition to buy out the other interest (a Canadian bank) subordinate to the first mortgage, and if the foreclosure is had it will lose its interest. The possible customers in case of a sale are the Grand Trunk, the Canada Southern, and the Lake Shore & Michigan Southern, all of which, as well as the Great Western, could carry its through traffic eastward. The committee appointed consists of Mr. S. Laing, M. P., Mr. Wythes, Mr. P. Rose, Mr. J. Coates, Mr. T. W. Powell, and Mr. C. Holland, of Liverpool. The line is 189 miles long, and the first charges are at the rate of about \$20,000 per mile, bearing 6 per cent. interest.

Portland & Ogdensburg.

Arrangements are nearly completed for the use of the Eastern and Maine Central depot at Portland by the trains of this road. Hitherto trains have arrived at and departed from the Boston & Maine station.

Pennsylvania—New York Division.

Trains have commenced running into the completed portion of the new depot in Jersey City. The eastern end of the old depot is being torn down to make room for the extension of the ferry-house.

Railroads in Buenos Ayres.

The Legislature has agreed to guarantee 7 per cent. on the cost of construction, not exceeding \$6,400, or \$32,000 per mile, of a line from Buenos Ayres to Rosario, with three branches, whose aggregate length will be 338 miles, so that the amount on which interest is guaranteed will be \$10,816,000, and the yearly interest \$757,120. The contract has been let to Lezica & Lanus, with whom is associated Mr. Newman, an English engineer.

Toledo & St. Louis Air Line.

A correspondent informs us that the grading of this road is nearly completed from Thornstown, Ind., eastward through Boone and Clinton counties, and is steadily progressing in Tipton County, although it has been somewhat delayed by wet weather, the road passing through low lands. The work is very light in Tipton County. At the town of Tipton the road crosses the Indianapolis, Peru & Chicago and Lafayette, Muncie & Bloomington roads. Messrs. Bargman & Richards, of Tipton, are the contractors.

New York Central & Hudson River.

The Hudson River being clear from ice, the Athens Branch has been reopened, and the large accumulation of eastern-bound freight between Albany and Syracuse is being sent by way of Athens and the river.

Osage Valley & Southern Kansas.

The Missouri Circuit Court at Fayette, Mo., has ordered the sale of this road under execution to be set aside. The sale was made last June by the Sheriff of Cooper County to satisfy a judgment, and Mr. Harvey Bunce was the purchaser. The case is to be appealed to the Supreme Court. The road is 25 miles long from Tipton, Mo., north to Booneville, and is leased by the Missouri Pacific.

Harrisburg & Potomac.

Track-laying is in progress on this road, and will be continued until a junction is made with the Dillsburg and Mechanicsburg Branch of the Cumberland Valley road.

Rochester & State Line.

About 16 miles of iron is laid, and the contractors hope to reach Leroy, 25 miles southwest of Rochester by the end of the month. The Howe truss-bridge over Allen's Creek is completed. The ballasting is being done as fast as the track is laid.

New York, Kingston & Syracuse.

It is stated that interest has been paid regularly on most of the bonds of this company, and that the ownership of the bonds on which a receiver was recently appointed is in dispute, the company claiming to own them and not recognizing the right of the present holder to them. The company has been in embarrassed circumstances for some time and unable to complete the road. Some 25 miles are yet to be built from Stamford, N. Y., to Oneonta, on the Albany and Susquehanna.

Southern Minnesota.

A plan of reorganization has been agreed upon by a number of the bondholders, and bondholders can ascertain the particulars on application to the trustees. The foreclosure sale is to take place January 15.

Atlantic, Tennessee & Ohio.

A bill now pending before the North Carolina Legislature authorizes the Dan River Coal Field Railroad Company to purchase this road, which is now in operation from Charlotte, N. C., northward to Statesville, 47 miles.

Fredericksburg, Orange and Charlottesville.

The Virginia Board of Public Works has taken possession of this road, the company having failed to complete the road according to its agreement with the State. The company was chartered after the war, and it was transferred all the franchises of the old Fredericksburg & Gordonsville Railroad Company, in which the State held a three-fifths interest, on condition that the road should be completed in a specified time, under the penalty of a forfeiture of the charter and property

of the company. One or two extensions of time have been granted to the company, the last of which expired December 1. The length of the road from Fredericksburg west to Gordonsville is 38 miles, all of which is graded, and 17 miles of track laid. The Board of Public Works has called a meeting of the stockholders of the old Fredericksburg & Gordonsville Company, which is to be held in Fredericksburg, Va., January 5, 1874.

Rochester & Geneva.

It is proposed to build a railroad from Rochester, N. Y., east by south to Geneva, to connect there with the Geneva & Ithaca. The distance is about 40 miles. The Auburn Branch of the New York Central & Hudson River already connects the two places.

Buffalo & Jamestown.

The grading is completed to Gowanda, N. Y., and the track is expected to reach that place in a few days. Arrangements are being made for the bonding of several towns along the line in order to secure the construction of the road to Jamestown.

Marietta & Pittsburgh.

The name of this road has been changed to Marietta, Pittsburgh & Cleveland, and the necessary papers filed by the company.

Green Bay & Minnesota.

The last rail on this road was laid December 8. The ballasting is being completed, and through trains will shortly commence running. The whole length of the road from Green Bay, Wis., to the junction with the La Crosse, Trempealeau & Prescott (over which trains will run into Winona) is 210 miles, and from Green Bay to Winona, Minn., 215 miles.

Ashtabula, Youngstown & Pittsburgh.

The track of this road has been ballasted and put in excellent condition during the present season. Since the opening of the road business has increased rapidly.

Toledo & Columbus.

The project of building a railroad from Columbus, O., to Toledo, on what was known as the western line, has been abandoned, and arrangements are being made for closing up the affairs of the company.

Cuyahoga Valley.

The grading between Cleveland, O., and Akron is progressing steadily. There has been some trouble in regard to the payment of workmen, but matters have been arranged.

Painesville & Youngstown.

The track is laid to Burton, O., 10 miles south of the old terminus at Chardon and 22 miles from Painesville. The road is of three-foot gauge.

Valley, of Virginia.

The line has been located into Staunton, Va., and arrangements have been made as to connections with the Chesapeake & Ohio at that place. The depot of the latter road is to be used for a time. The location of the line into Staunton from the south has not yet been decided on.

South Mountain & Boston.

The preliminary surveys have been completed to Pine Island, N. Y., the present terminus of the Goshen & Deckertown Branch of the Erie. Work is to be commenced on this (the northeast) end of the road early in the spring.

Boston & Maine.

The annual meeting of this company was held in Lawrence, Mass., December 10. A large number of stockholders were present and the affairs of the company were pretty freely discussed, the policy adopted by the present management being generally endorsed. The stockholders voted to authorize the issue of \$2,000,000 of bonds, in addition to the \$2,000,000 already authorized. A resolution was adopted declaring that the true policy of the company was to keep clear of all entangling alliances with the Eastern Railway Company, and instructing the directors to resist all schemes for a union of the two companies by consolidation, lease, or otherwise. In answer to enquiries, the President stated that the money to pay the lately declared dividend had been borrowed, the net earnings having been used for construction purposes. The free-pass question was discussed, but no action taken.

Mississippi Valley & Western.

It is reported that the Hannibal & St. Joseph Company has endorsed bonds of this company, and that from this source money will be furnished to pay contractors.

Memphis, Carthage & Northwestern.

The grading of this road is substantially completed to Oswego, Kan., 36 miles west of the present terminus at the Missouri State line. A partial re-organization of the company has been effected, and efforts are being made to secure means for laying the track.

Railroad Manufactures.

The car works of W. H. Herrick, of Oswego, N. Y., are now employing a moderate force of men on three-quarter time and corresponding wages.

The Harrisburg (Pa.) car shops have received a heavy order from a Western Company, and nearly a full force is now employed.

The locomotive shops at Paterson, N. J., have continued to discharge men and are now employing only a small fraction of their usual force, and no new work is being commenced.

The Hinkley Locomotive Works in Boston are running with less than half the usual force, at reduced wages. The work in the repair shops is not affected, but proceeds as usual.

The shops of the Portland Company at Portland, Me., are running night and day on a contract for 25 locomotives for the Grand Trunk.

Montrose.

A correspondent informs us that work on this narrow-gauge line has been progressing steadily but slowly through the year, but has lately been suspended for want of means. The total length of the line from Tunkhannock, Pa., to Montrose is 27.1 miles, of which 26½ are graded and ready for the track, and there are 25 miles of track laid. An agreement made by the company when starting prevents it from borrowing money, and consequently it has become necessary to stop work when the road is almost completed. Work was stopped November 26, and will not be resumed until next summer.

Washington City, Virginia Midland & Great Southern.

Track on the extension from Lynchburg, Va., to Danville is laid five miles beyond Staunton River to a point 31 miles south of Lynchburg. The weather has caused some delay in the work, but it is hoped that the track will reach Pittsylvania Court House by the close of the year.

Great Western of Canada.

This company announces that it has accumulated, according to the terms of the traffic guarantees, \$4,211.45 for the purchase of Detroit, Hillsdale & Indiana bonds, and \$24,235.82 for the purchase of Detroit, Eel River & Illinois bonds, and holders of the bonds of these companies bearing the Great Western's guarantee are invited to send proposals for their sale to these amounts to Joseph Price, General Manager of the

Great Western Company, at Hamilton, Ont., up to the 15th of January next.

Kansas Pacific.

The company invites the holders of its three classes of bonds—Kansas Pacific Railway, Union Pacific Railway Company Eastern Division, and Leavenworth Branch—to send their addresses, with a description of their holdings, to Mr. Carlos S. Greeley, Treasurer of the company, at St. Louis.

Hannibal & St. Joseph.

Wm. H. Swift, Sidney Bartlett and Nathaniel Thayer, the Trustees of the land bonds, will receive until noon of December 26, at No. 56 Wall street, New York, or No. 26 Sears' Building, Boston, sealed proposals for the sale to them of \$50,000 of this company's land bonds. The bids will be opened in Boston on the 27th.

Dividends.

The Baltimore City Passenger Railway Company has declared a semi-annual dividend of 3 per cent., payable January 2.

Wells, Fargo & Company have declared a dividend of 4 per cent., payable January 5.

The New York, New Haven & Hartford Railroad Company will pay the usual half-yearly dividend of 5 per cent. January 2. Transfer books will be reopened January 25.

The half-yearly dividend of 4 per cent. on the stock of the New York & Harlem Railroad will be paid January 2 by the New York Central & Hudson River Company, according to the terms of the lease. Transfer books will be closed December 20 and reopened January 3.

The Panama Railroad Company will pay the usual quarterly dividend of 3 per cent. January 15. Transfer books will be closed on the 5th and reopened on the 17th.

The Georgia Railroad Company has declared a semi-annual dividend of 4 per cent., payment of which, however, is deferred to April 1, 1874.

New Jersey Midland.

The President of this company has published a statement dated in November. From this it appears that the present amount of capital stock is \$1,500,000, and that additional subscriptions have been secured for the Belvidere Branch of \$200,000 in cash and \$100,000 in right of way. The bonded debt now includes \$3,000,000 first-mortgage bonds, \$1,500,000 second-mortgage bonds, and \$240,000 consolidated bonds. There is besides a floating debt amounting to \$241,000, and outstanding bonds on terminal property at Weehawken amounting to \$155,000, so that the capital account representing the 73 miles of road now owned is \$6,636,000, or about \$91,000 per mile. Of the consolidated mortgage bonds (\$10,000,000) it is proposed to use \$5,000,000 for funding the existing debt and the remainder for building the road to the terminus at Weehawken, erecting the necessary buildings there, double tracking the road and constructing the Belvidere Branch.

The surveys of this branch have been completed, and more than half the right of way secured. Its length from Ogdensburg, N. J., to Belvidere is 35 miles.

The company owns 5 locomotives, 8 passenger and 2 baggage cars, 82 freight cars, 41 dump and 3 hand cars, and two ferry-boats. The estimated value of the Weehawken property is \$1,000,000.

It is reported that the permanent arrangement with the Middletown & Unionville road has not yet been made, and that the New York & Oswego Midland people are making efforts to secure control of that road.

It is stated that an agreement has been made by which all the New York business of the Sussex Railroad will hereafter pass over the Midland, with which connection is made at Franklin.

Michigan Lake Shore.

The United States District Court at Grand Rapids, Mich., December 5, issued an order appointing Mr. D. P. Clay Receiver of this road, which has hitherto been in charge of Mr. Thomas D. Messler (President of the company) as Receiver appointed by the Allegan County Circuit Court. The suit in which Mr. Clay is appointed Receiver was instituted by a number of bondholders to recover interest due. The rolling stock has all been taken off the road, and the running of trains suspended. The road is 57 miles long, from Allegan, Mich., north by west to Muskegon, and is connected with the Grand Rapids & Indiana by a section of the Mansfield, Coldwater & Lake Michigan from Allegan to Monteth, 11 miles. It has been operated in connection with the Grand Rapids and Indiana road and in the interest of the Pennsylvania Company. It is reported that Mr. Clay, as Receiver, will work the road in the interest of the Lake Shore & Michigan Southern, and that the latter company will furnish the necessary equipment. It was originally intended to work in connection with the Lake Shore's Kalamazoo Division.

Union Pacific.

In the case of this company against the Treasurer of Lincoln County, Neb., the Supreme Court of the United States has affirmed the decision of the Circuit Court, and holds that the road is liable to taxation by the counties through which it passes. The question before the court was, substantially, whether the Union Pacific Railroad Company could be considered as an instrument of the Federal Government, and as such exempt from State taxation. Justices Field, Bradley and Hunt dissented from the opinion of the Court.

The Land Department reports for November sales of 13,865.53 acres for \$63,990.50, an average of \$4.57 per acre. The total sales up to November 30 were 832,966.08 acres for \$3,774,191.99, an average of \$4.53 per acre. The principal of land notes on hand is \$1,996,797. The whole amount of land-grant bonds issued was \$10,400,000, of which \$352,000 have been canceled by trustees and \$1,456,000 canceled by Land Department, leaving \$8,592,000 outstanding.

Kansas City, Memphis & Mobile.

This company has given notice that by December 16 the Westport Tunnel will be completed, and more than the amount of the Jackson County (Mo.) subscription will have been expended. Unless the County Court makes the necessary order to issue a portion of the bonds voted, work will be suspended.

Central, of Georgia.

This company has resolved to pass the December dividend. A large amount of money has been expended on construction, and the sale of bonds having been very slow, it has been deemed best to suspend payment of dividends for the present.

Wilmington & Reading.

The track has been laid three miles west of Birdsboro, Pa., on the extension from Birdsboro to Reading. Tracklaying is also progressing from Reading eastward, and it is hoped that the road will be completed by the end of the year.

Philadelphia & Reading.

Nearly all the coal-train hands recently on strike have returned to work at the reduced wages. The coal traffic has consequently been resumed.

Cincinnati Southern.

The Trustees have let the contract for the King's Mountain Tunnel to Messrs. Bibb & Fabler. The work is to be commenced in 10 days and completed in 18 months. The cost by the engineer's estimates is \$163,000. The Trustees have also located 80 miles of the road, from South Danville, Ky., to Chetwood on the Tennessee line on what is known as the "Burnside military survey."

